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BroadBand Technologies Announces Agreement With Bosch Telecom for Expanded Strategic Alliance
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RESEARCH TRIANGLE PARK, N.C.--(BUSINESS WIRE)--May 19, 1998--
Companies Will Combine Expertise To Deliver Full Service Access Network Solutions

BroadBand Technologies, Inc. (NASDAQ:BBTK), a leading provider of integrated access platforms for the telecommunications industry, today announced it has expanded its strategic alliance with Bosch Telecom Gmbh to include developing, manufacturing and selling Full Service Access Network (FSAN) Standard products. BroadBand and Bosch have signed a comprehensive agreement that includes $14 million in cash payments to BroadBand, royalty payments to BroadBand, cross transfers of intellectual property, a transfer of BroadBand employees and equipment to Bosch, international manufacturing and distribution agreements, as well as future cross supply agreements. Under the agreement, the companies will develop products to meet the emerging, global FSAN Standard. By utilizing the resources and expertise of both companies, BroadBand and Bosch seek to develop and accelerate time-to-market for FSAN-compliant product offerings. "A key component of BroadBand's new business strategy is to broaden the company's participation in the broadband global access markets though an international alliance that enhances the FLX technology," said David E. Orr, president and CEO of BroadBand Technologies, Inc. "We look forward to this expanded relationship with Bosch and to the continued execution of BroadBand's strategic goals. This alliance, combined with the other elements of its strategic plan, will enable BroadBand to reduce its cash consumption and significantly expand its market opportunities." Bosch Telecom is the $2.9 billion telecommunications unit of the $27 billion German-owned Robert Bosch group of companies. It is a leader in Europe and other parts of the world, providing narrowband and wireless services to service providers through its advanced access systems. FSAN is a global standard being developed by a 23 member interest group which includes twelve international and eleven U.S. telephone companies, including SBC, BellSouth and GTE, as well as Bosch and BroadBand. The FSAN initiative is creating requirement specifications for access systems that provide both broadband and narrowband services. The FSAN standard is very similar to the architecture of BroadBand's existing iFLX(TM) product. Both architectures incorporate high bandwidth, asynchronous transfer mode (ATM), passive optical network (PON) and Digital Subscriber Line (xDSL) technologies. By using the iFLX platform as the broadband foundation for the FSAN products and investing in additional development, the companies expect to have a distinct time-to-market advantage in developing FSAN-compliant products. Terms of the Definitive Agreement include, but are not be limited to, provisions for the following:

-- In return for the intellectual property rights for its iFLX product, Bosch will pay BroadBand $12 million. In addition, Bosch will pay approximately $2 million to BroadBand to purchase development, computing and test equipment and to reimburse BroadBand for certain FSAN development expenses. -- BroadBand will transfer to Bosch co-ownership rights of its iFLX intellectual property and sole ownership of foreign patents and exclusive international distribution rights to the iFLX product. BroadBand will retain exclusive manufacturing rights to supply Bosch with the iFLX product. -- Approximately 40 BroadBand engineering and international marketing employees will be transferred to Bosch at the closing of the definitive agreement. In addition to the $12 million for the iFLX

intellectual property (IP) and product rights, and the $2 million for development, computing and test equipment/reimbursement for expenses, Bosch has made a commitment to invest in the FSAN product development work, subject to certain market development criteria. BroadBand will have access to the Bosch IP via the cross intellectual property transfer provisions of the agreement. -- Once the FSAN products are completed, BroadBand will have exclusive U.S. and Canadian distribution and manufacturing rights except for sales incidental to wireless and certain specific customers. Bosch will have exclusive international rights. BroadBand also will receive a 3.5 percent royalty on FSAN product sales by Bosch. Restrictions on sales by both companies will terminate over time, at which time the companies will compete in both the U.S. and international markets. -- The companies also will execute cross supply agreements that will govern transfer prices within six months of the closing.

The FSAN agreement with Bosch is subject to approval of Hart, Scott, Rodino Act filings from the Department of Justice's Antitrust Division and other conditions to closing. Closing is expected to occur in early June. Strategic Focus on Local Loop Access

With today's announcement, BroadBand has initiated the second element of its new business strategy. In February, BroadBand announced a three-part strategy to improve its financial position and target emerging needs in the established, high-growth local loop access market. As the first of the three initiatives, BroadBand signed multiple agreements with Lucent Technologies worth in excess of $50 million over three years. The second initiative, completed today, was BroadBand's intention to form a strategic alliance to evolve the iFLX platform to meet the emerging FSAN standard. Rounding out the new strategy, the company's third strategic initiative has begun and involves development of an access product that capitalizes on its core competencies in ATM, broadband access and xDSL, as well as intellectual property BroadBand is receiving from Lucent. This new corporate strategy establishes a foundation for BroadBand to leverage its technical strengths to target the high-growth, $2 billion, converging loop access and data markets, while gravitating toward more independence and less reliance on video demand over an integrated platform. About Bosch Telecom

Bosch Telecom is part of the $27 billion German-owned Bosch Group which has operations throughout the world. Apart from its $2.9 billion telecommunications business, it is well known and strongly established in the automotive, consumer electronics, and capital goods markets. About BroadBand Technologies

BroadBand Technologies, Inc., based in Research Triangle Park, North Carolina, was founded in 1988. It specializes in integrated access platforms, which combine ATM switching and transport with Digital Subscriber Line (xDSL) and Fiber-in-the-Loop (FITL) technologies, to deliver high-speed data and voice services as well as digital video. The company uses its access expertise in the development of its own loop electronics equipment and also supports other telecommunications equipment providers for broadband and optical local loop components. For more information on BroadBand Technologies, please see its home page at http://www.bbt.com This press release contains forward-looking statements including, but not limited to, the company's performance, development of an FSAN standard, development of new products, successful strategy implementation and the performance of agreements as to which all closing conditions have not yet been satisfied. The Company's Form 10-K, Form 10Qs and other documents on file with the Securities and Exchange Commission identify important factors which could cause actual results to differ materially from those indicated by the forward looking statements. However, forward looking statements are beyond the ability of the Company to control and in many cases the Company cannot predict what factors would cause actual results to differ materially from those indicated by the forward looking statements.

Note to editors: iFLX is a trademark of BroadBand Technologies, Inc. All other trademarks are registered trademarks of their respective companies.

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Class Patent Waiver
Volume: 53 Issue: 214 Page: 44602
CITATION NUMBER: 53 FR 44602
Date: FRIDAY, NOVEMBER 4, 1988

AGENCY: Department of Energy--(DOE)
DOCUMENT TYPE: Proposed Rules
CFR: 10 CFR Part 785
DATES: Comment by: 19890109
Hearing: 19881213
Request to make oral statements by: 19881130
CONTACT INFORMATION: Richard A. Lambert, 202-586-2802
ACTION: Proposed Rule
INTERNAL DATA: (FR Doc. 88-25632 Filed 11-3-88; 8:45 am)
Word Count: 7816

SUMMARY: The Department of Energy (DOE) today proposes a rule which would provide for a class waiver of the Government's rights in certain inventions made under contracts, grants, or cooperative agreements of DOE. The purpose of this class waiver is to maximize and expedite, to the extent permitted by law, the retention of rights to inventions made in the performance of federally-funded research and development contracts, grants, or cooperative agreements by the private sector. Generally, pursuant to 42 U.S.C. 2182 (1982) and 42 U.S.C. 5908 (1982), for contracts, grants, agreements or other arrangements with DOE for research, development or demonstration work, with entities other than small business or nonprofits, title in inventions vests in the Government, unless the Government waives its rights in conformity with the provisions of these statutes. This proposed rule provides for a class wiaver in two categories:
(1) A class advance waiver (i.e., waiver at the time of contracting) of the Government's rights in inventions arising from contracts with domestic large business contractors, other than management and operating contractors generally referred to as GOCOs; and
(2) A class waiver of the Government's rights in identified inventions arising from contracts with domestic large business contractors, including management and operating contractors.
The proposed class waiver is subject to requirements, limitations, terms and conditions as provided in the proposed rule, and is intended to be implemented by simplified procedures requiring contractor certification of compliance with the requirements, terms and conditions of the class waiver. Where the class waiver is not applicable, contractors may still seek patent waivers on a case-by-case basis in accordance with established practices.

TEXT:

DEPARTMENT OF ENERGY
10 CFR Part 785
Class Patent Waiver

AGENCY: Department of Energy.

ACTION: Proposed rule.

SUMMARY: The Department of Energy (DOE) today proposes a rule which would provide for a class waiver of the Government's rights in certain inventions made under contracts, grants, or cooperative agreements of DOE. The purpose of this class waiver is to maximize and expedite, to the extent permitted by law, the retention of rights to inventions made in the performance of federally-funded research and development contracts, grants, or cooperative agreements by the private sector. Generally, pursuant to 42 U.S.C. 2182 (1982) and 42 U.S.C. 5908 (1982), for contracts, grants, agreements or other arrangements with DOE for research, development or demonstration work, with entities other than small business or nonprofits, title in inventions vests in the Government, unless the Government waives its rights in conformity with the provisions of these statutes. This proposed rule provides for a class wiaver in two categories:

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DATES: Written comments must be received on or before January 9, 1989.

A public hearing will be held on December 13, 1988 at 9:00 a.m. Requests to present oral statements must be received no later than November 30, 1988.

ADDRESSES: Written comments (three copies) and requests to speak at a public hearing must be addressed to: Richard E. Constant, Assistant General Counsel for Patents, GC-42, Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585.

The hearing will be held at DOE Headquarters, 1000 Independence Avenue, SW., Washington DC, Room 1E-245.

FOR FURTHER INFORMATION CONTACT: Richard A. Lambert, Office of Assistant General Counsel for Patents, 1000 Independence Avenue, SW., Washington, DC 20585. Telephone (202) 586-2802.

SUPPLEMENTARY INFORMATION:

I. Background II. Section-by-Section Discussion of Proposed Rule III. Review Under Executive Order 12291 IV. Review Under Regulatory Flexibility Act V. Review Under National Environmental Policy Act VI. Review Under Paperwork Reduction Act VII. Federalism VIII. Opportunities for Public Participation A. Written Comment Procedures B. Public Hearing C. Conduct of Hearing

I. Background

Normally, for contracts, grants, agreements, or other arrangements with DOE for research, development or demonstration work with entities other than domestic small businesses or nonprofit organizations, title in inventions vests in the Government, pursuant to the Atomic Energy Act of 1954 (42 U.S.C.

2182 (1982)) and the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5908 (1982)), unless the Government waives its

rights in inventions in conformity with the provisions of these statutes. Title 35 U.S.C. 202 (1982) (Pub. L. 96-517, as amended by Pub. L. 98-620), generally permits domestic small business firms and domestic nonprofit organizations to elect to retain title in inventions made under funding agreements with the Federal Government. Accordingly, this notice concerns only domestic large, for profit, businesses, not covered by 35 U.S.C. 202, as to which the right to title to inventions is governed by the Atomic Energy and Nonnuclear Acts.
subject to the guidance to agencies contained in the President's Memorandum on Government Patent Policy of February 18, 1983, as referenced in Executive Order 12591, dated April 10, 1987.

The Memorandum of Government Patent Policy directs that:

To the extent permitted by law, agency policy with respect to the disposition of any invention made in the performance of a federally-funded research and development contract, grant, or cooperative agreement award shall be the same or substantially the same as applied to small business firms and nonprofit organizations under Chapter 38 of Title 35 of the United States Code.

With the overall goal of incorporating the results of the Department's research, development, and demonstration programs into the mainstream of American commerce consistent with the objectives of the President's patent policy and in accordance with the authority of 42 U.S.C. 2182 (1982) and 42 U.S.C. 5908 (1982), DOE proposes that it is in the best interests of the United States and the general public to grant a class waiver as provided in the proposed regulation.

The proposed rule provides for a class waiver in two categories:
(1) Class advance waiver of the Government's rights in inventions arising from contracts with domestic large business contractors other than Management and Operating Contractors.

(2) Class waiver of the Government's rights in identified inventions arising from contracts with domestic large business contractors including Management and Operating Contractors.

The Department reserves the right to grant additional class waivers as deemed appropriate in the public interest. Consideration was given to granting an additional class waiver covering inventions falling within certain exceptional circumstances technologies, which would have provided an exclusive license to recipients of funding agreements with domestic small businesses and nonprofit organizations for fields of uses outside the specified exceptional circumstances. However, the applicable class of inventions and potential waiver recipients is not deemed to be sufficiently broad to justify at this time the grant of such a class waiver. Requests for waiver of the Government's rights in such technologies may continue to be made, on a case-by-case basis, in accordance with established DOE waiver policies and procedures.

Certain areas in the national interest are excluded from the scope of these waivers. The exclusions are generally as follows: inventions arising under international agreements or treaties; weapons-related inventions; inventions made under agreements funded by DOE's naval nuclear propulsion program; classified or sensitive inventions; uranium enrichment inventions; inventions relating to storage and disposal of civilian high-level nuclear waste or spent nuclear fuel; and inventions falling within other class waivers granted to third parties by DOE.

Inventions arising under international agreements or treaties are excluded from the class waiver in order to avoid conflict with invention rights provisions of such agreements or treaties.

Weapons-related inventions are excluded from the class waivers for reasons involving nonproliferation of weapons, national security, conflicts of interest, management requirements of DOE's unique contractor operated weapons laboratories and in order that DOE may ensure prosecution of patent applications or statutory invention recordings on selected inventions in which the Government has a strong interest in establishing license rights.

Classified and sensitive inventions are also excluded from the scope of the class waivers for the reasons noted above for weapons related inventions. In addition, the restricted status of such inventions usually continues for many years, during which any present plans of a contractor to commercialize the inventions are subject to change.

In the case of uranium enrichment, the technology at present is exclusively under Government control with the Government being the only legal customer for the technology. Therefore, the rationale for establishing private incentives is lessened if not eliminated. Furthermore, DOE currently has a requirement to preserve the transferability of this technology to the private sector. In order to retain a transferable package of intellectual property rights, DOE retains title in this area.

Regarding technology for storage and disposal of civilian high-level nuclear waste or spent nuclear fuel, since the program is funded through special fees levied on the utility industry, Government retention of patent rights preserves the Government's flexibility to grant licenses to utilities as appropriate, or to solicit utility industry participation in rights allocations. Further, since the Government has a statutory mandate to develop the technology to the point of commercialization, incentives inherent in the patent system are not the driving mechanism to promote development of this technology.

However, for one of the excluded technologies, i.e., storage and disposal of civilian high-level nuclear waste or spent nuclear fuel and possibly for excluded technologies that may in the future be so designated, a contractor may elect to retain an exclusive license in all fields of use outside the excluded technology where the contractor can demonstrate that the invention has such an outside use, and specifically identifies such use as one it will commercialize within three years. An example of such an outside use is use of nuclear waste disposal technology for disposal of nonradioactive toxic chemical wastes.

Inventions covered by existing or future class waivers to third parties, e.g., DOE's class waivers covering third party use of DOE facilities, are excluded from the class waiver covering identified inventions for large business contractors, in view of the overriding DOE interest in promoting third party use of such facilities and to avoid invention rights conflicts that might arise from conflicting class waiver provisions.

In addition, similar to DOE's authority to declare "exceptional circumstances" under 35 U.S.C. 202(a) the Secretary of Energy reserves the right to designate further exclusions to this class waiver, as deemed necessary in the national interest.

Of course, contractors may request a waiver of rights to an invention, including those excluded from the scope of this class patent waiver, pursuant to DOE's existing waiver policies and procedures.

Implementation of the class waiver proposed herein is intended to be made using simplified procedures requiring certifications by contractors regarding matters such as its intent to commercialize a particular invention, including submission of general plans for commercialization, (itself or through licensees) within three years (with a right to seek extension of such three- year period, in two year intervals, if contractor can demonstrate to the satisfaction of DOE that it or its licensee(s) is actively pursuing commercialization of the invention), and its willingness

to bear patent costs, followed by review and certification by DOE that the conditions of the particular class waiver have been made, e.g., a cost-sharing of 20% (or such other level as may be determined by the General Counsel or designee to be warranted in view of specific mission, programmatic or statutory needs). The proposed class waiver will result in significant reductions in the paperwork burdens imposed on contractors seeking a DOE patent waiver as compared to current policies, which require a waiver petitioner to submit considerably greater amounts of information in support of a waiver request.

(1) Class Advance Waiver

Subject to exclusions as noted above, the class advance waiver applies:

1. To contractors which are domestic large businesses (i.e. not qualifying as small businesses or nonprofit organizations under 35 U.S.C. 202 (1982) engaged in research, development, or demonstration work under a DOE contract, except contracts for management or operation of contractor-operated research, production or weapons facilities (GOCO);
2. Where the contract requires 20% cost sharing by the contractor (or such other level as may be determined by the General Counsel or designee to be warranted in view of specific mission, programmatic or statutory needs);
3. Where the contractor agrees to commercialize any elected invention itself or through its licensee(s) within a three-year time period from the date of disclosure of the invention to DOE, subject to extension of the time period for commercialization, in two year intervals, so long as contractor can demonstrate to the satisfaction of DOE that it or its licensee(s) is actively pursuing commercialization of the invention; and
4. Where DOE certifies the application of the waiver to the contract.

Section 9 of the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5908 (1982)), in establishing the patent waiver authority, provided four objectives that the Secretary or his designee is to seek to accomplish in making waiver determinations. In addition, eleven specific factors are to be considered at the time of contracting in making such determinations. DOE has harmonized these provisions with section 152 of the Atomic Energy Act of 1954, 42 U.S.C. 2182 (1982) so that waivers are evaluated under these criteria regardless of the technology under which an invention is made. Within these statutory structures, DOE's waiver policy has been used flexibily. DOE has granted many advance waivers both to large corporations and, prior to the passage of The Patent and Trademark Amendments of 1980, Pub. L. 96-517, section 7, 94 Stat. 3016, to small businesses and universities. Certain consistent fact patterns have formed the basis for granting advance waivers to large businesses on a case-by-case evaluation.

These patterns are utilized in this class advance waiver in accordance with the statutes.

DOE has generally granted waivers to large business contractors who cost share a minimum of 20% (not including waived fee) of the contract costs. This level of cost sharing has evolved over several years of waiver experience and has been shown to be an excellent indication of whether a research project fits within a corporations' long range plans and of the corporate interest in commercializing the technology which is the subject of the contract. Cost sharing establishes a corporate commitment by the contractor to commercialize the technology. Establishing a 20% cost sharing standard for this class waiver recognizes the experience gained from previous waivers and will simplify the process by which large business contractors can obtain advance waivers. Further, DOE has found having 20% cost sharing effectively extends its ability to carry out its programmatic mission. The 20% cost sharing requirement has been found to be an effective tool to combine corporation research interest with Government programs, thereby leveraging Government research funds and providing technology transfer into commercial application.

This promotes the commercialization of inventions made under these contracts and serves to make the benefits of DOE's energy research, development, and demonstration programs widely available to the public in

the shortest practicable time. Over DOE's several years of experience using 20% cost- sharing as a prime consideration for grant of an advance patent waiver, we are not aware of any prospective contractor declining to contract with DOE as a result of 20% cost-share requirement for an advance waiver. To provide flexibility, however, the 20% cost sharing required for this class waiver may be changed to another level if it is determined by the General Counsel or designee to be warranted in view of specific mission, programmatic or statutory needs. The public is specifically invited to provide comments regarding the appropriateness of the 20% cost-sharing level as a precondition to a class advance waiver. If any member of the public wishes to comment on this point, we would appreciate his or her views on the appropriate cost- share level for an advance waiver, with reasons therefor.

The other requirement of this class waiver, that the contractor agree to commercialize any elected invention (itself or through its licensees) within a three year time period (subject to extension if contractor can show that it or its licensee(s) is actively pursuing commercialization of the invention) serves to foster and assure expeditious pursuit of commercial utilization of waived inventions by the contractor. Three years appears to be a reasonable time period for an entity acting in good faith to proceed to effect commercialization of a typical invention. For those inventions which may require longer time periods for commercialization in view of, for example, the need for extensive development efforts prior to effecting commercialization, the three year time period may be extended, in two year intervals, so long as contractor can demonstrate to the satisfaction of DOE that it or its licensee(s) is actively pursuing commercialization of the invention.

DOE's ten years of experience in granting advance waivers to contractors who have cost shared has resulted in no indication to DOE of an adverse impact on competition. No such adverse impact is foreseen from this class waiver. Waived inventions will be subject to a license to the Government and DOE will have the right to require periodic reports on the contractor's utilization, or efforts at obtaining utilization, of the invention. Further as a condition of this waiver, DOE shall have the right to exercise its march-in rights and require the contractor to license a waived invention if DOE determines that the contractor is not making reasonable efforts to utilize the invention, or alternatively, if the practice of the invention by the contractor or its assignee or licensee has tended substantially to lessen competition or result in undue concentration in any line of commerce to which the technology of the invention relates. An additional march-in right provides for automatic termination of the waiver as it relates to a particular invention and reversion of title in the invention to the Government if the invention is not commercialized within three years (subject however to extension of the three-year period for commercialization if the contractor can demonstrate to the satisfaction of DOE that it or its licensee(s) is actively pursuing commercialization of the invention).

Concomitant with this class advance waiver, DOE is also granting a class waiver to identified inventions to large business contractors, including management and operating contractors of DOE Government-owned facilities (GOCOs), where the contractor agrees to commercialize the invention, either itself or through licensees within a three-year time period. These two categories complement each other to permit the large business contractor, including GOCO contractors, to acquire title to all inventions (except for those imbued with the national interest as set forth herein) in which the contactor has plans for commercialization, either itself or through licensees. This class waiver will significantly act to elicit private risk capital and promote commercial utilization of inventions made under DOE's research, development, and demonstration programs and thereby make the benefits of these programs widely available to the public in the shortest practicable time.

(2) Class Waiver of Identified Inventions

Subject to exceptions as noted above, the class waiver of patent rights to identified inventions applies to inventions made by contractors who are domestic large businesses (i.e., entities not qualifying as small business firms or nonprofit organizations under 35 U.S.C. 202 (1982) engaged in research, development, or demonstration work under a DOE funding agreement, including contractors for the management and operation of DOE research, production or weapons facilities (GOCO), where:

(1) The contractor agrees to commercialize the invention itself or through its licensees within a three-year time period from the date of waiver is effective as to the invention. Three years appears to be a reasonable time period for an entity acting in good faith to proceed to effect commercialization of a typical invention. The three-year time period for commercialization is subject to extension, in two-year intervals, so long as contractor demonstrates to the satisfaction of DOE that it or its licensee(s) is actively pursuing commercialization of the invention. For purposes of this regulation, "commercialize" shall mean to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case under such conditions as to establish that the invention is being utilized and that its benefits are to the extent permitted by law or Government regulations available to the public on reasonable terms;

(2) The contractor reports the invention and elects to retain the rights therein within the times provided in the contract for reporting inventions and requesting greater rights, respectively (however, normally the waiver will not apply to inventions which DOE has advertised as being available for licensing) and agrees to file, prosecute, and maintain any and all patent applications and patents on the invention at its own expense, unless, in the case of GOCO contractors, special contractual provisions are negotiated;

(3) The invention is not, at the time of the request for waiver, developed to the point of commercialization by the Government and further development of the invention is not being funded and is not intended to be funded by the Government. Among DOE's statutory considerations for waivers are consideration of the extent to which the Government intends to further develop to the point of commercial utilization the results of the contract effort, and consideration of the extent to which a waiver is a reasonable and necessary incentive to call forth private risk capital for the development and commercialization of the invention. Limiting the class waiver to inventions not being funded and not intended to be funded by the Government encourages expenditure of private risk capital for development and commercialization of an invention, and affords appropriate weight to the foregoing considerations. For purposes of this waiver, an invention is not further funded if Government funding is not being, and is not intended to be, directed at the further development of the invention or the enhancement of the invention in a manner beneficial to commercial applications of the invention. This does not include insignificant amounts of fnding for minor modification of the invention or use of the invention incidental to other work. On the other hand, further funding would clearly exist where work is directed toward actually reducing an invention to practice or developing the invention in a manner which improves its performance or enhances its value in commercial applications. To implement this class waiver, the contractor is required to certify that the invention has not been developed to the point of commercialization and that, to the best of contractor's knowledge and belief, further development of the invention is not being funded and is not intended to be funded by the Government. Since this information is generally within the knowledge of the requestor, certifying as to such matters should present no undue burden on the contractor; and

(4) The waiver is certified by DOE to be applicable to the invention.

For the purposes of this waiver, contractor means either a prime contractor or a subcontractor. The waiver does not give a prime contractor or subcontractor rights in the other's inventions.

Section 9 of the Federal Non-nuclear Energy Research and Development Act

of 1974, 42 U.S.C. 5908 (1982), in establishing the patent waiver authority, provided four objective that the Secretary or his designee is to seek to accomplish in making waiver determinations. In addition, specific statutory factors are to be considered in making these determinations with respect to identified inventions. DOE has harmonized these provisions with section 152 of the Atomic Energy Act of 1954, 42 U.S.C. 2182 (1982), so that waivers are evaluated under these criteria regardless of the technology under which an invention is made. DOE has granted many identified invention waivers over the past ten years and the experience therefrom is applicable to the present class waiver. In general, large business contractors are selected for a research, development, or demonstration contract because of their technical expertise in the subject matter of the contract. Providing the contractor with title to inventions made under DOE contracts should encourage a commitment to commercialization and foster the application of private risk capital for development and manufacture of inventions.

Regarding GOCO contractors, the Department of Energy (DOE), unlike most other Government agencies, employs contractors to manage and operate certain of its major research, production and weapons facilities. The following principles, as set forth by the Secretary of Energy, provide the policy framework for these management and operating (GOCO) contracts:

(1) The Government retains responsibility for overall program management and project technical direction while the contractor is responsible for the day-to-day management of the work;

(2) The Government and contractor have an identity of interest in the mission being pursued;

(3) The parties intend a long-term close relationship;

(4) The Government assumes virtually all financial risk;

(5) The contractor is hired to manage;

(6) The contractor broadly supports the performance of Government functions by executing programs of national significance on behalf of the Government; and

(7) The Government ultimately is responsible for security, health and safety and the proper use of public funds.

These contractor-operated Government facilities have for some forty years benefited DOE and its predecessor agencies in carrying out agency research, development, and demonstration (R,D&D) programs. The GOCO facilities have, in great measure, had a remarkable record of scientific and technical success.

This success is due, in part, to the unique contractual relationship that exists between DOE and its GOCOs; viz., the dedication of both technical and administrative skills of a private organization to a significant Federal mission in a close, long-term, cooperative relationship.

Most of the inventions made under research and development activities at the GOCO facilities require additional development before they are available in the commercial marketplace. This is because many of the GOCO inventions are founded upon basic or advanced research. Additionally, many of these inventions are conceptual in nature and are on a labortory or proof-of- principle scale. Scale-up to a commercial size demonstration of the inventive concept is often a prerequisite to negotiating royalty-bearing licenses.

Finally, many of the inventions arising out of DOE's energy research will require substantial capital in order to translate the invention into commercial reality; such costs, for example, include further engineering, design, start-up and marketing.

A class waiver of the Government's rights in identified inventions as set forth herein will create sufficient exclusive rights in these inventions to bring forth private risk capital expeditiously to promote and move the technology into the commercial marketplace and thereby make the benefits of DOE's programs widely available to the public in the shortest practicable time. This would satisfy the broad objectives of section 9 of the Federal

Non-nuclear Act, 42 U.S.C. 5908 (1982), while being in keeping with the ultimate objective of the Presidential Memorandum.

Furthermore, the grant of a class waiver of identified inventions as set forth herein would provide an effective mechanism for achieving technology transfer of energy-related technology into the mainstream of American commerce by bringing a focused attention and stronger commitment on the part of the Department's GOCO contractors to this mission objective. Permitting these contractors to retain title to a broad range of important energy- related technologies should enhance the technology transfer initiative of the Department.

It is recognized that the various GOCO contractors have diverse interests and needs requiring flexibility in the implementation of this class waiver. Therefore, approaches which ensure that the needs of each GOCO contractor are met as well as serving the best interests of the United States and the general public must be tailored for each GOCO contract. Factors to be considered for such alternative approaches may include, for example, the willingness of the GOCO contractor to use all or a portion of royalties received from licensing of waived inventions for further research at the facility, and the willingness to assign over title to waived inventions to a successor contractor upon termination of the contract. Adequate provisions must be included to protect against a potential contractor conflict of interest as well, commensurate with the allocation of patent ownership and use of royalty income. Appropriate contractual provisions reflecting these concerns must be approved by the General Counsel or designee, and must be included in each GOCO contract in order for the GOCO contractor to qualify for this class waiver.

Granting this waiver should have no adverse impact on competition. Making title to inventions available to the contractor in technologies in which the contractor has plans for commercialization, either itself or through licensees, is consistent with DOE's past practices and will not only ensure the commercialization of the invention but enhance competition. The waiver will be subject to a license to the Government and DOE will have the right to require periodic reports of the contractor's utilization, or efforts at obtaining utilization, of the invention. Further as a condition of this waiver, DOE shall have the right to exercise its march-in rights and require the contractor to license a waived invention if DOE determines that the contractor is not making reasonable efforts to utilize the invention, or alternatively, if the practice of the invention by the contractor or its assignee or licensee has tended substantially to lessen competition or result in undue concentration in any line of commerce to which the technology of the invention relates. In addition, the waiver is automatically terminated if the contractor cannot demonstrate to the satisfaction of DOE that the invention has been commercialized within three-years of the disclosure of the invention to DOE, or if no extension of the three year period for commercialization is obtained. Concomitant with this waiver to identified inventions and in accordance with the above statutory authority, DOE is also granting a class advance waiver to domestic large business contractors that are not management or operating contractors, where the contractor agrees to cost share 20% of the contract effort (or such other level as may be determined by the General Counsel or designee to be warranted in view of specific mission, programmatic or statutory needs). These two categories complement each other to permit the large business contractor to acquire title to all inventions (except for those inbued with the national interest as set forth herein) in which the contractor has a commitment to commercialization. These two categories will significantly act to elicit private risk capital and promote commercial utilization of inventions made under DOE's research, development, and demonstration programs and management and operating contracts and thereby make the benefits of these programs widely available to the public in the shortest practicable time.

Certain inventions made by the contractor prior to the grant of this class

waiver may be important to the contractor's commercialization efforts. While identified waiver requests could be made by the contractor for greater rights, on each of these inventions, it is desirable to reduce the paper work associated with processing waiver requests for these inventions. Additionally, expedited waiver processing would permit the earliest rapid start-up of commercialization and technology transfer programs by contractors by insuring a supply of inventions for these activities immediately upon the grant of the class waiver. Accordingly, the scope of this waiver shall also include inventions made by contractor (or if a GOCO, its predecessor) on which a timely filed identified waiver request is pending as of the effective date of this waiver. As noted earlier, the waiver shall normally not apply to any invention which DOE has advertised as being available for licensing.

As a condition of the waiver, the contractor shall provide to DOE on a DOE- approved form a duly-executed instrument fully confirmatory of all rights retained by the Government for each invention as to which the contractor retains rights pursuant to this waiver. The contractor will bear the costs of patent prosecution and maintenance unless, for a GOCO contractor, special contractual provisions are negotiated.

The waiver to the identified class of inventions is in the best interests of the United States and the general public, in accordance with the objectives to be obtained and the determinations to be made under DOE statutory waiver policy. It should encourage the participation of contractors in DOE programs and provide for the commercialization of DOE developed technology in the shortest practicable time.

Accordingly, in view of the statutory objectives to be obtained and the factors to be considered under DOE's statutory waiver policy, all of which have been considered, it is proposed that a waiver of the class of inventions identified above and under the situations described above will best serve the interests of the United States and the general public.

II Section-by-Section Discussion of Proposed Rule

Section 785.1 of the regulation defines the scope of the class waiver of the Government's U.S. and foreign patent rights in inventions arising from contracts with domestic large business contractors. Section 785.1(b) is directed to a class advance waiver. Generally, this class advance waiver is applicable to recipients of DOE contracts (including grants and cooperative agreements) with domestic large businesses, (other than GOCO contractors) where the contract requires 20% cost sharing by the contractor (or such other level as may be determined by the General Counsel or designee to be warranted in view of specific mission, programmatic or statutory needs), and where the contractor agrees to commercialize an elected invention (itself or through licensees) within a three year time period (subject to extension so long as contractor can demonstrate that it or its licensee(s) is actively pursuing commercialization of the invention).

Section 785.1(c) is directed to a class identified invention waiver, which generally applies to large business contractors, including GOCO contractors.

The waiver is applicable generally to inventions which the contractor agrees to commercialize within a three-year time period, subject to extension as above, when such inventions have not been developed to the point of commercialization by the Government, and there is no further funding, nor plans for further funding of the invention by the Government.

Section 785.2 provides for exclusion of certain technologies from the class waiver in the national interest. Presently, excluded technologies include uranium enrichment technology, storage and disposal of civilian high-level nuclear waste and spent nuclear fuel technology, classified inventions, and inventions which are sensitive under section 148 of the Atomic Energy Act of 1954, 42 U.S.C. 2168 (1982). In addition, contracts and inventions under international agreements or treaties in existence or to be entered into in the future are also excluded from this waiver, as are all contracts and inventions funded by DOE's naval nuclear propulsion

programs or by DOE's weapons programs. However, for inventions related to storage and disposal of civilian high-level nuclear waste and spent nuclear fuel, the contractor may elect to retain an exclusive license in fields of use outside such technology where the contractor specifically identifies such fields of use as uses it will commercialize within three years.

Section 785.3 addresses terms and conditions for class waivers, including a paid-up Government license, march-in rights, and requirements that patent costs be undertaken by the contractor. Section 785.4 provides for implementation of the class waiver by simplified procedures requiring certification by the contractor and DOE as to applicabiliy of the class waiver.

III. Review Under Executive Order 12291

Section 3 of Executive Order (E.O.) 12291 (46 FR 13193, February 19, 1981) requires that DOE determine whether a rule is a "major rule," as defined by section 1(b) of E.O. 12291, and prepare a regulatory impact analysis for each major rule. DOE has determined that the proposed rule does not meet the E.O.

12291 definition of a major rule as one likely to result in: (1) An annual effect on the economy of $100 million or more; (2) a major increase in costs or prices for consumers, individual industries, Federal State, or local government agencies, or geographic regions; or (3) significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States based enterprises to compete with foreign- based enterprises in domestic or export markets. Accordingly, a regulatory impact analysis is not required.

Pursuant to section 3(c)(3) of E.O. 12291 these rules were submitted to the Director of OMB for a ten-day review. The Director has concluded his review under that Executive Order.

IV. Review Under Regulatory Flexibility Act

The Regulatory Flexibility Act of 1980, 5 U.S.C. 601-612 (1982), requires, in part, that an agency prepare an initial regulatory flexibility analysis for any rule, unless it determines that the rule will not have a "significant economic impact" on a substantial number of small entities. The proposed rule concerns class patent waivers directed primarily at entities that are not small businesses, since there is separate statutory authority governing disposition of invention rights of Government contractors that are small businesses. Therefore, as required by section 603(b), DOE certifies that the proposed rule will not have a significant economic impact on a substantial number of small entities.

V. Review Under National Environmental Policy Act

DOE has determined that the proposed rule is not a major Federal action with significant environmental impact and does not affect the quality of the environment. Consequently, the proposed rule does not require preparation of an Environmental Assessment or Environmental Impact Statement under the National Environmental Policy Act of 1969, 42 U.S.C. 4321 et seq. (1982).

VI. Review Under Paperwork Reduction Act

The reporting requirements contained in this proposed rule have been submitted to OMB for approval under the Paperwork Reduction Act.

VII. Federalism

Executive Order (EO) 12612 requires that regulations or rules be reviewed for any substantial direct effects on States, on the relationship between the national government and States, or the distribution of power and responsibilities among various levels of government. If there are sufficient substantial direct effects, then EO 12612 requires preparation of a federalism assessment to be used in all decisions involved in promulgating and implementing a regulation or a rule.

The principal impact of today's regulation, when finalized, will be to

speed up waivers of government patent rights to private entities. The regulation will not have any effect on the States, the relationship between the States and Federal government, or the distribution of power and responsibilities among various levels of government.

VIII. Opportunities for Public Participation

Section 501(c)(1) of the Department of Energy Organization Act, 42 U.S.C. 7191(c)(1) (1982), provides that if the Secretary determines that a substantial issue of fact or law exists or that a proposed rule is likely to have substantial impact on the Nation's economy or on large numbers of individuals or businesses, an opportunity for oral presentation of views, data, and arguments shall be provided. To preclude any issue in this regard, such an opportunity will be provided.

A. Written comment procedures. Interested parties are invited to participate in this rulemaking by submitting views, data, or arguments with respect to the proposal set forth in this notice to Richard E. Constant, Assistant General Counsel for Patents, Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585. The comments and the outside of the envelope should be identified with the designation, "Docket No. GC88- 2." Three copies of the comments should be submitted.

All comments received by January 9, 1989 and other relevant information will be considered by DOE before final action is taken regarding the proposed regulations.

B. Public hearing. DOE has determined to hold one public hearing on this proposal. The time and place of the public hearing is indicated at the beginning of this notice.

Any person who has an interest in the proposed rulemaking or who is a representative of a group of persons that has an interest in this rulemaking may make a written request for an opportunity to make an oral presentation.

Such a request should be directed to the address given at the beginning of the preamble and must be received by the date specified at the beginning of this notice. Requests may be hand-delivered between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday. Requests should be marked as for written comments, with the additional notation "Request to Speak."

The person making the request should briefly describe the interest concerned and, if appropriate, state why that person is a proper representative of a group with such an interest, give a concise summary of the proposed oral presentation, and provide a phone number where the person or group may be contacted through January 9, 1989.

Each person selected to be heard at the public hearing will be notified by December 6, 1988. Witnesses presenting oral testimony must bring seven copies of their statements to the hearing.

In the event any person wishing to testify cannot provide seven copies, alternative arrangements can be made with the hearing coordinator in advance of the hearing by so indicating in the letter requesting an oral presentation or by calling (202) 586-2802.

C. Conduct of hearing. DOE reserves the right to select the persons to be heard at the hearing, to schedule their respective presentations, and to establish the procedures governing the conduct of the hearing. The length of each presentation shall be limited to 20 minutes.

A DOE official will be designated to preside at the hearing. This will not be a judicial or evidentiary type hearing. Questions may be asked of speakers only by those conducting the hearing, and there will be no cross-examination of persons presenting statements. Any decision made by DOE with respect to the subject matter of the hearing will be based on all information available to DOE. At the conclusion of all initial oral

statements at the hearing, each person who has made an oral statement will be given the opportunity to make a rebuttal statement. The rebuttal statements will be given in the order in which the initial statements were made and will be subject to time limitations.

Any person wishing to ask a question at the hearing may submit the question, in writing, to the presiding officer. The presiding officer will determine whether the question is relevant, and whether the time limitations permit it to be presented for answer.

Any additional procedural rules needed for the proper conduct of the hearing will be announced by the presiding officer.

A transcript of the hearing will be made and the entire record of the hearing, including the transcript, will be retained by DOE and made available for inspection at the DOE Freedom of Information Office, Room 1-E-152, 1000 Independence Avenue, SW., Washington, DC, between the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday except Federal holidays. Any person may purchase a copy of the transcript from the court reporter.

The public hearing may be cancelled if no public testimony is scheduled in advance. In the event the hearing is cancelled, DOE will make every effort to publish an advance notice of such cancellation in the Federal Register.

List of Subjects in 10 CFR Part 785

Inventions, Licenses, Patents and waivers.

In consideration of the foregoing, Part 785 of Title 10 of the Code of Federal Regulations is proposed to be added as set forth below.

Issued in Washington, DC, October 28, 1988.
Eric J. Fygi,
Acting General Counsel.

PART 785--CLASS PATENT WAIVER

Sec.
785.1 Scope of waiver.
785.2 Limitations.
785.3 Terms and conditions.
785.4 Procedures.

Authority: Department of Energy Organization Act, section 301, 42 U.S.C. 7151 (1982); Federal Nonnuclear Energy Research and Development Act of 1974, section 9, 42 U.S.C. 5908 (1982); Atomic Energy Act of 1954, section 152, 42 U.S.C. 2182 (1982); President's Memorandum on Government Patent Policy (1983).

Sec. 785.1 Scope of waiver.

(a) The Department of Energy, hereinafter "DOE," waives its rights under section 152 of the Atomic Energy Act of 1954, 42 U.S.C. 2182 (1982), and section 9 of the Federal Nonnuclear Energy Research and Development Act of 1974, 42 U.S.C. 5903 (1982), subject to the limitations and provisions contained herein, (1) in advance, with respect to all inventions and discoveries arising from certain contracts as specified herein, including grants and cooperative agreements, with domestic large business contractors other than Management and Operating Contractors (as defined in 48 CFR 17.601) (hereinafter M&O contractors), and (2) with respect to identified inventions arising from contracts, grants, and cooperative agreements, with domestic large business contractors, including M&O contractors.

(b) The class advance waiver applies to contractors which are domestic large businesses (i.e., not qualifying as small businesses or nonprofit

organizations under 35 U.S.C. 202 (1982) engaged in research, development, or demonstration work under a DOE contract, except contracts for management and operation of contractor-operated research, production or weapons facilities, where:

(1) The contract requires 20% cost sharing by the participant (or such other level as may be determined by the General Counsel or designee to be warranted in view of specific mission, programmatic or statutory needs);

(2) The contractor agrees to commercialize any elected invention, itself or through its licensees, within a three year time period from the date of disclosure of the invention to DOE, subject to extension of the time period for commercialization, in two year intervals, so long as contractor demonstrates to the satisfaction of DOE that it or its licensee(s) is actively pursuing commercialization of the invention. For purposes of this regulation, "commercialize" shall mean to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system, and, in each case under such conditions as to establish that the invention is being utilized and that its benefits are to the extent permitted by law or Government regulations available to the public on reasonable terms; and

(3) DOE, upon review of the contract and relevant facts, certifies that the wavier applies to the contract.

(c) The class identifed invention waiver applies to inventions made by contractors who are domestic large businesses (i.e. not qualifying as small businesses or nonprofit organizations under 35 U.S.C. 202 (1982)) engaged in research, development or demonstration work under a DOE contract, including a contract for management and operation (M&O contract) of a DOE research, production or weapons facility, where:

(1) The contractor agrees to commercialize the invention itself or through its licensees within a three year time period from the time the waiver is effective as to the invention, subject to extension of the time period from commercialization, in two year intervals, so long as contractor demonstrates to the satisfaction of DOE that it or its licensee(s) is actively pursuing commercialization of the invention;

(2) The contractor reports the invention and elects to retain the rights therein, within the times provided in the contract for reporting inventions and requesting greater rights, and agrees to file, prosecute, and maintain any and all patent applications and patents on the invention at its own expense;

(3) The invention is not, at the time of the request for waiver, developed to the point of commercialization by the Government and the Government is not funding further development of the invention and has no intentions for further funding of the invention; and

(4) Upon review of the invention and relevant facts, DOE certifies the waiver is applicable to the invention.

(d) In order to expedite processing of previously filed waiver requests, the scope of the identified invention waiver shall also include inventions made by the contractor (or, in the case of a Management and Operating Contractor, its predecessor) on which a timely filed identified invention waiver request in accordance with DOE's existing patent waiver regulations is pending as of the effective date of this waiver. However, the class waiver shall normally not apply to any invention which DOE has previously advertised as being available for licensing.

(e) Certain technologies, listed in Sec. 785.2, have been excluded from the scope of this waiver in the national interest. However, with respect to inventions falling within the limitation specified in Sec. 785.2(d), or the limitation specified in Sec. 785.2(j) if so authorized by the Secretary, when the contractor demonstrates that the invention has a commercial use falling outside said limitation the contractor may elect to retain an exclusive license. The exclusive license will apply to all fields of use outside the said limitation where such fields of use are specifically identified by the contractor as uses it intends to commercialize within three years from the date of disclosure of the invention of DOE, (subject

to extension of the time period for commercialization, in two year intervals, so long as contractor demonstrates to the satisfaction of DOE that it or its licensee(s) is actively pursuing commercialization of the invention in such field of use) and will include the right to grant sublicenses of the same scope. The exclusive license shall be subject to the same requirements, procedures, terms and conditions as provided herein for application of the waiver (including the royalty free right of the Government to practice inventions by or on behalf of the Government in such fields of use), except that the Government may file a patent application thereon, and retain title to any resulting patent. Upon the contractor's request, DOE may permit the contractor to file a patent application on behalf of the Government. Where the contractor requests the right to file a patent application on behalf of the Government, the contractor normally must bear the cost of preparing and prosecuting the patent application and maintaining any resulting patent at its private expense. Upon timely request by the contractor, DOE will make a determination as to whether an invention reported in accordance with the contract is covered by the limitations specified in Sec. 785.2.

(f) DOE reserves the right to change the scope of rights available to contractors in later-identified exceptions under Sec. 785.2(j).

(g) For purposes of this waiver, contractor means either a prime contractor or a subcontractor. The waiver does not give a prime contractor or subcontractor rights in the other's inventions. The waiver shall not affect any future waiver or any waiver previously granted. The advance waiver shall not apply to any contract which has been modified to reduce the cost share below 20% (or such other level as may be determined by the General Counsel or designee to be warranted in view of specific mission, programmatic or statutory needs).

Sec. 785.2 Limitations.

The class waiver of this regulation does not include:

(a) Contracts and inventions under international agreements or treaties in existence or to be entered into in the future;

(b) Contracts and inventions funded by DOE's naval nuclear propulsion program or by DOE's weapons programs;

(c) Contracts and inventions relating to uranium enrichment (including isotope separation):

(d) Contracts and inventions relating to storage and disposal of civilian high level nuclear waste or spent nuclear fuel;

(e) Contracts and inventions relating to subject matter that is classified, or sensitive under section 148 of the Atomic Energy Act of 1954, 42 U.S.C.
2168 (1982);

(f) For identified invention waivers, any weapons related inventions;

(g) For identified invention waivers, inventions that occur under or are related to DOE's weapons related programs being conducted under contracts for the management and operation of facilities primarily dedicated to those programs;

(h) For identified invention waivers, inventions that are made under contracts for the management and operation of facilities primarily dedicated to naval nuclear propulsion or defense program production facilities;

(i) For identified invention waivers, those inventions covered by existing or future class waivers granted to third parties by DOE, e.g. the "work for others" class waiver;

(j) Any further exceptions that may, in the national interest, be designated by the Secretary in the future.

Sec. 785.3 Terms and conditions.

(a) The class advance waiver is conditioned upon the requesting contractor's accepting a Patent Rights clause in accordance with the Federal Acquisition Regulations and any applicable DOE regulations, as modified by DOE for any designated exceptions, including a paid-up

Government license and march-in rights; utilization reporting requirements; a requirement of automatic termination of the waiver as it applies to a specific invention and reversion of title to the Government if the contractor cannot demonstrate to the satisfaction of DOE that it or its licensee(s) has commercialized the invention within these years from the date of disclosure of the invention to DOE, or obtained an extension to such three-year period for commercialization; a requirement that the contractor license a waived invention if the practice of the invention by the contractor or its assignee or licensee has tended substantially to lessen competition or result in undue concentration in any line of commerce to which the technology of the invention relates; a requirement that prosecution and maintenance of an elected invention shall be at the sole expense of the contractor, regardless of any present or future interest that the U.S. Government may retain, so long as the contractor desires to retain title to the invention; and a requirement that the contractor shall provide DOE on a DOE-approved form a duly executed instrument fully confirmatory of all rights retained by the Government for each invention as to which the contractor retains rights pursuant to this waiver.

(b) The identified invention class waiver is conditioned upon the electing contractor's providing DOE on a DOE-approved form a duly executed instrument fully confirmatory of all rights retained by the Government, similar to the rights enumerated in Sec. 785.3(a), for each invention in which the contractor retains rights pursuant to this waiver. In addition, for contracts for Management and Operation of Government Facilities, appropriate contractual provisions reflecting terms of implementation of this waiver must be approved by the General Counsel or designee, and must be included in each contract for the contractor to qualify for this class waiver. Such provisions may include clauses addressing, for example, conflict of interest matters, disposition of royalties, and willingness to assign title to waived inventions to a successor contractor. Unless special contractual provisions are negotiated, the contractor will normally bear the costs of patent prosecution and maintenance.

Sec. 785.4 Procedures.

(a) For an advance waiver, implementation of this class waiver is to be by a simple procedure which requires (1) a written request for an advance waiver by a contractor; (2) certification by the contractor regarding its intent to commercialize any elected invention itself or through its licensee(s) within three years from the date of disclosure of the invention to DOE, including a general statement of contractor's plans and intentions to so commercialize; and (3) certification by the contractor that it will bear the costs of patent prosecution and maintenance of waived inventions at its private expense.

(b) For an identified invention waiver, implementation of this class waiver is to be a simple procedure which requires (1) the contractor's reporting the invention with an election to retain rights in accordance with the class waiver (such election is to be within the time for requesting a waiver as provided in the contract and should identify the fields of use for which rights are requested if the invention falls within the scope of limitation Sec. 785.2(d), or Sec. 785.2(j) if applicable; (2) certification by the contractor that to the best of its knowledge the invention does not fall within international agreements or treaties of the U.S. Government; (3) certification by the contractor regarding its intent to commercialize the invention itself or through its licensee(s) within three years from the time this waiver is effective as to the invention, including a general statement regarding contractor's plans and intentions to so commercialize; (4) if the contract involves classified subject matter, certification by the contractors as to whether the invention is classified, or sensitive under section 148 of the Atomic Energy Act of 1954, 42 U.S.C. 2168 (1982); (5) certification by the contractor that the invention has not been developed to the point of commercialization and that to the best of contractor's knowledge and belief, further development of the invention is not being funded and is not intended to be funded by the

Government; and (6) certification by the contractor that it will bear the cost of prosecuting and maintaining any patent applications or patents on the invention at its private expense, unless, if a Management and Operating Contractor of a Government facility, otherwise approved by the General Counsel or designee.

(c) For either an advance or identified waiver, the General Counsel or designee must review and certify as to whether the conditions of the waiver have been met. This includes, for an advance waiver, certification of meeting the requirement of 20% cost sharing (not including any waived fee) or such other level as may be determined by the General Counsel or designee to be warranted in view of specific mission, programmatic or statutory needs or, for an identified waiver, certification that the waiver is applicable to the reported invention. This function may be delegated to DOE patent counsel assisting the procuring activity under the direction of the General Counsel or designee.

(FR Doc. 88-25632 Filed 11-3-88; 8:45 am)
BILLING CODE 6450-01-M

LEGAL PUBLICATIONS:
Pub. Law 97-90 SEC. 210 -- Department of Energy National Security and Military Application of Nuclear Energy Authorization Act of 1982
Pub. Law 95-91 SEC. 501 301 -- Department of Energy Organization Act (Act of 8/4/77)
Pub. Law 91-190 -- National Environmental Policy Act of 1969
Pub. Law 96-517 SEC. 6 7 -- Patents, Title 35 U.S.C., Amendment (12/12/80)
Pub. Law 93-577 SEC. 9 -- Federal Nonnuclear Energy Research and Development Act of 1974
Pub. Law 79-585 SEC. 152 148 -- Atomic Energy Act of 1946
Pub. Law 82-593 -- Patents, Title 35 U.S.C., Enactment (Act of 7/19/52)
Pub. Law 98-620 -- Trademark Clarification Act of 1984; State Justice Institute Act of 1984; Semiconductor Chip Protection Act of 1984; Federal District Court Organization Act of 1984
Pub. Law 83-703 SEC. 1 -- Atomic Energy Act of 1954 (AEA)
Pub. Law 999-12591 -- Facilitating Access to Science and Technology (Executive Order of 4/10/87)
Pub. Law 999-12612 -- Federalism (Executive Order of 10/26/87)
?

T S4/3,KWIC/1-6

4/3,KWIC/1 (Item 1 from file: 180)
DIALOG(R)File 180:Federal Register
(c) 2004 format only The DIALOG Corp. All rts. reserv.

DIALOG Accession Number: 02114209 Supplier Number: 880600799
Antitrust Guidelines for International Operations
Volume: 53 Issue: 110 Page: 21584
CITATION NUMBER: 53 FR 21584
Date: WEDNESDAY, JUNE 8, 1988

TEXT:
... the Clayton Act "to enjoin conduct threatening a clear and irreparable harm to the national interest ." /35/ In addition, the ETC Act creates a private cause of action for injunctive relief...are conclusively presumed to be unreasonable. They are therefore condemned under the antitrust laws without inquiry into the precise harm they have caused./45/ The most common examples of such naked...

...441 U.S. 1, 19-20 (1979) (in characterizing conduct under the per se rule, inquiry must focus on whether the effect and purpose of a practice "are
to threaten the...exclusion of competitors from participation sometimes has been the focus of antitrust concern in the past , exclusion from membership in a joint venture rarely is anticompetitive. Limiting the number of participants...more likely challenge a restraint that may have an anticompetitive effect if there is a history of collusion by firms at either level of the market.
NOTE /96/ Id. at section...knowledge and wealth and increase productive efficiency.

Licenses. Licenses of patents and other forms of intellectual property are contracts transferring to the licensees a right to use intellectual property.
The licensing of intellectual property benefits...

...may be per se unlawful and, where appropriate, prosecuted criminally.

The Department does not normally inquire whether a particular license restriction is necessary to accomplish its procompetitive goals, or whether some...an "active supervision" standard of the sort applied in state action cases would require difficult inquiries into the foreign sovereign's conduct of its own affairs./124/
NOTE /124/ Id.

Difficult.. . the form of evidence as to how consumers have responded to price increases in the past), the Department normally would infer that effect from reliable circumstantial evidence. In evaluating geographic substitutability... including, for example, internal management studies, expansion plans, actual investments and other steps toward entry), past attempts by Beta to enter the market; and whether ...is financing the project through a 30-year loan from the United States government. The interest rate on the loan is substantially below the current commercial rate of lending and payments...shale through this new British company. They have also agreed to provide the company with past and projected price and cost data relating to their production and sale of X-metal...are likely, the joint venture and its restraints are lawful; it is not necessary to inquire as to the joint venture's precise procompetitive benefits. On the other hand, the existence... majority share of the voting stock of a subsidiary, the Department would make a factual inquiry to determine whether the parent corporation actually had effective working control of the subsidiary.
NOTE...

...example, is always treated as a
merger despite the continued existence of a significant minority interest . In
such cases, the Department presumes that the acquired and acquiring firms will coordinate their themselves because Alpha holds a majority voting stock interest (100 percent, 60 percent, and 56 percent, respectively) in each of them. Alpha's sale...

... Canadian subsidiaries would probably not change that conclusion. Alpha would retain nearly a majority stock interest and apparent effective working control since it appears that the remaining stock interests in both ...

... and foreign product patent protection for this material, which it calls AGPLEX. AutoGlass discovers broad interest in AGPLEX from safety eyeglass manufacturers, who believe that such a material would revolutionize the... If it appears that there is no dangerous probability of success,
the Department will not inquire further. In assessing the probability of
successful monopolization, the Department considers the market share of ... to restrict output and raise price) and it would not be in the economic self- interest of individual firms to engage in the conduct alone./231/
NOTE /231/ Matsushita Electric Indus...that the agreement purported to settle a dumping case would not constitute a defense.

An agreement among foreign competitors to restrict output and/or raise price in response to an antidumping investigation is exempt from application of the antitrust laws only to the extent that the agreement is reached and carried out strictly in accordance with the suspension agreement provisions of the antidumping law./234/ Congress has enacted detailed rules governing the effects of a suspension on the rights and obligations of affected domestic and foreign industries and setting forth the procedures that the...

... does not completely eliminate the LTFV sales./236/ The Commerce Department must find the suspension agreement to be in the public interest following notice and comment by interested parties, including consumers./237/ If exporters or interested parties...

... if it ultimately is determined that the antidumping laws have not been violated, the suspension agreement is voided and the investigation is terminated./238/
NOTE /234/ 19 U.S.C. 1673...
19880608

4/3,KWIC/2 (Item 1 from file: 542)
DIALOG(R)File 542:SEC Online(TM) 10-K Reports
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1669416
UNITED STATES SHOE CORP - 1995 10K Report

Publication Date: 01/28/95

TEXT:
...forth in
Section 3.9 of the Seller Disclosure Schedule or as contemplated by this Agreement , neither the Seller nor any of its Subsidiaries had at January 28, 1995, or has...

...incurred after
January 28, 1995 in the ordinary course of the Footwear Business consistent with past practice and which would not, in the aggregate,

have a material adverse effect on the...

...Subsidiaries have conducted
the Footwear Business only in the ordinary course of business
consistent with past practice, except as set forth in Section 3.10 of
the Seller Disclosure Schedule, and...
...any change in accounting methods, received a ruling from any taxing
authority or signed an agreement with any taxing authority which, in
each case, is reasonably likely to have a material...a
separate, consolidated, unitary, combined or any other basis; and such
term shall include any interest whether paid or received, fines,
penalties or additional amounts attributable to, or imposed upon, or...

...nor any of its
Subsidiaries is a party to, or bound by, any collective bargaining
agreement , contract or other under-standing with a labor union or labor
organization Related to the...

...termination
of any of the Licenses or would result in any other impairment of the
rights of the holder of any of the Licenses. The Seller and its
Subsidiaries have duly...

...other pleading with any Governmental Entity which challenges or
questions the validity of or any rights of the holder under any
License.

Section 3.15 Intellectual Property.

(a) Section 3.15...

...of the
Seller Disclosure Schedule, the Seller and its Subsidiaries own all
right, title and interest in and to, or hold valid licenses, if any,
from third parties for, all of...

...not, as of and since the
date upon which they acquired any of the Acquired Intellectual
Property , (i) transferred , conveyed, sold, assigned, pledged, mortgaged
or granted a security interest in any of the Acquired Intellectual
Property to any third party, (ii) entered into any license, franchise
or other agreement with respect to any of the Acquired Intellectual
Property with any third person, or (iii...its Subsidiaries conflicts
or infringes in any way with any third party's intellectual property
rights , or (ii) challenging the Seller's or its Subsidiaries' ownership
of or right to use...

...covenant not to sue, or non-assertion
assurance or entered into any indemnification or settlement agreement
with any person with respect to any part of the Acquired Intellectual
Property or intellectual...

...contemplated hereby or in the
Conveyancing Agreements will not impair any of the Footwear Business'
rights under any such Contract whether oral or written and, to the
Seller's knowledge, all... or in the aggregate, have a material adverse
effect on
Parent. As used in this Agreement , any reference to any event, change
or effect having a "material adverse effect on Parent...

...and all of (i) the Parent Warrants which are to be
issued pursuant to this Agreement and (ii) the shares of Parent Common
Stock which will be issuable upon exercise of the Parent Warrants will
be, when issued in accordance with the terms of this Agreement , in the
case of the Parent Warrants, and the Warrant Agreement or the terms of

the Parent Warrants, in the case of the shares of Parent...

...paid and non-assessable and free of
any Liens (except Permitted Liens) and any preemptive rights in respect thereto.

Section 4.3 Authority. Each of Parent and the Purchaser has the requisite corporate power and authority to execute and deliver this Agreement and the Purchaser Documents (to the extent it will be a party thereto) and to consummate the transactions contemplated hereby and thereby. The execution, delivery and performance of this Agreement and the Purchaser Documents by Parent and the Purchaser (to the extent it will be...

...corporate proceedings on the part of Parent and the
Purchaser are necessary to authorize this Agreement and the Purchaser Documents (to the extent it will be a party thereto) or for Parent and the Purchaser to consummate the transactions so contemplated. This Agreement has been, and each of the Purchaser Documents will be, duly executed and delivered by...

...the extent it
will be a party thereto) and constitutes or (to the extent such agreement is not being entered into as of the date hereof) will constitute a valid and...

...other applicable requirements of, the HSR Act, neither the execution, delivery or performance of this Agreement by Parent or the Purchaser nor the consummation by either of them of the transactions...
...of the terms, conditions or
provisions of any note, bond, mortgage, indenture, lease, license, contract, agreement , franchise, permit, concession or other instrument, obligation, understanding, commitment or other arrangement to which Parent...with, or in default or violation of, any note, bond, mortgage, indenture, lease, license, contract, agreement , franchise, permit, concession or other instrument, obligation, understanding, commitment or other arrangement to which Parent...

...have a
material adverse effect on Parent or relates to the transactions contemplated by this Agreement . For the purposes of this Agreement , "Parent's Knowledge" shall mean the actual knowledge, after reasonable inquiry , of the officers of Parent listed in Section 4.6 of the Parent Disclosure Schedule...

...forth in Section 4.7 of the Parent Disclosure Schedule,
the transactions contemplated by this Agreement or by the Warrant Agreement will not constitute a change of control under or require the consent from or the...

4/3,KWIC/3 (Item 2 from file: 542)
DIALOG(R)File 542:SEC Online(TM) 10-K Reports
(c) 1987-1997 SEC Online Inc. All rts. reserv.

1547727
HANOVER DIRECT INC - 1994 10K Report

Publication Date: 12/31/94

TEXT:
owned or used by it infringes or interferes with any rights of any others, and (iii) owns the rights to, has valid registrations with the United States Patent and Trademark Office for, and has...

...of the Intellectual Property listed in Schedule 1.1(k), which, together with the other Intellectual Property being transferred by Seller to Purchaser pursuant hereto, are all the rights necessary to hold in order to conduct the Business as presently conducted. Set forth on...

...3.16 hereto is a true, complete and accurate list and description of (i) all inquiries , investigations, actions or proceedings to the best of Seller's knowledge pending, threatened in writing...
...to the best of Seller's knowledge, the Business is not the subject of any inquiries or investigations, nor in default with respect to any order, written injunction, or decree, of...

...relationship with Seller or with Purchaser upon the completion of the transactions contemplated by this Agreement . Seller does not have any material financial interest , direct or indirect, in any material supplier or customer.

3.18 Employee Benefits.

(a) Schedule...

...and each written, and to the best of Seller's knowledge, other than written, employment agreement , compensation agreement , bonus, commission or similar arrangement and fringe benefit arrangement which is maintained, administered or contributed...

...material respects with the National Labor Relations Act, as amended, Title VII of the Civil Rights Act of 1964, as amended, the Fair Labor Standards Act, as amended, the Occupational Safety...

...e) There are no pending arbitration proceedings arising out of or under any collective bargaining agreement to which Seller is a party, or to the best knowledge of Seller, any basis for which a claim may be made under any collective bargaining agreement to which Seller is a party;

(f) Certain information relating to all of Seller's...

...seasonal employees.

3.20 Absence of Certain Changes or Events. Except as contemplated by this Agreement , since the Balance Sheet Date, (i) Seller has not permitted Bank to apply, and Bank...

...Account") to any of Seller's obligations to Bank except for (A) the payment of interest in the ordinary course of business under the Credit Agreement , (B) the payment of the Revolving Loan balance, (C) the payment of Seller's fees...
...have been assessed, asserted or claimed with respect to any Imported Goods, and no written inquiries relating thereto have been received. All Imported Goods have been properly marked as to country...account or fund.

3.24 Disclosure. No representation or warranty by the Seller in this Agreement or in any exhibit hereto, or in any list, statement, document or information set forth in or attached to any schedule delivered or to be delivered pursuant to this Agreement , except for schedules delivered pursuant to Section 6(1) hereof, contains or will contain any...

...26 Survival of Representations. Each representation and warranty of the Seller set forth in this Agreement shall survive for a period of sixteen months from the Closing Date except that the...

...s Representations and Warranties. In order to induce Purchaser and Hanover to enter into this Agreement and to consummate the transactions contemplated hereunder, Bank makes the following representations and warranties:

3A...
...presently
conducted.

3A.2 Authority and Absence of Conflict. The execution and delivery of this Agreement and the consummation of the transactions contemplated hereby by Bank have been duly authorized, and no additional corporate action is required for the approval of this Agreement , which is valid and binding upon Bank and enforceable in accordance with its terms, subject...

...presently in effect, or other
similar instrument affecting Bank, or cause a default under any agreement or document to which the Bank is a party, or by which it or any...

...its property or assets may be bound, which default would give any party to such agreement or document rights against the Purchaser or Purchased Assets.

3A.3 Title to Purchased Assets. Except as may...

...a shareholder and creditor of Seller, Bank has no ownership or other right, title or interest in and to any of the Purchased Assets being transferred to Purchaser pursuant hereto.

3A...

...applicable law.

3A.5 Absence of Certain Changes or Events. Except as contemplated by this Agreement , since the Balance Sheet Date, Seller has not permitted Bank to apply, and Bank has...

...Accounts to any of Seller's obligations to Bank except for (A) the payment of interest in the ordinary course of business under the Credit Agreement , (B) the payment of the Revolving Loan balance, (C) the payment of Seller's fees...

...of
each such occurrence.

3A.6 Disclosure. No representation or warranty by Bank in this Agreement or in any exhibit hereto, or in any list, statement, document or information set forth in or attached to any schedule delivered or to be delivered pursuant to this Agreement , contains or will contain any untrue

statement of a material fact or omits or will...

...7 Survival of Representations. Each representation and warranty of the Bank set forth in this Agreement shall survive for a period of sixteen months from the Closing Date except that the...

...s Representations and Warranties. In order
to induce Seller and Bank to enter into this Agreement and consummate
the transactions contemplated hereunder, Purchaser and Hanover,
severally and jointly, hereby make the...in effect.

4.2 Authority and Absence of Conflict. The execution and delivery of
this Agreement and the consummation of the transactions contemplated
hereby by Purchaser and Hanover have been duly authorized, and no
additional corporate action is required for the approval of this
Agreement , which is valid and binding upon Purchaser and Hanover and
enforceable in accordance with its...
...date and presently in effect, or other similar instrument
affecting Purchaser or Hanover or any agreement or document to which
the Purchaser or Hanover is a party or by which it...

...of notice or the passage of time, or both) a default under any
such instrument, agreement or document or accelerate the maturity of or
otherwise modify any obligation of Purchaser or...

...3 Authority. Purchaser has the full power and right to (i) execute
and deliver this Agreement and any other agreement or document
contemplated hereby and consummate the transactions contemplated
thereby, (ii) purchase or otherwise acquire...

...Purchased Assets and
(iii) assume the Assumed Liabilities in accordance with the terms of
this Agreement .

4.4 Disclosure. No representation or warranty by Purchaser or Hanover
in this Agreement or in any exhibit hereto, or in any list, statement,
document or information set forth...

...Survival of Representations. Each representation and warranty of
Purchaser and Hanover set forth in this Agreement shall survive for a
period of sixteen months from the Closing Date. Each representation
and...

...of Clement attached hereto
as Exhibit D, the representations and warranties of Seller in this
Agreement and in the exhibits and schedules hereto or delivered
pursuant hereto would not, if made...

...Seller shall be used, operated, repaired and maintained
in a normal business manner consistent with past practice. Seller
shall conduct, and Bank shall cause Seller to conduct, the Business in
accordance... i) merge or consolidate with or into any corporation or other
entity;

(j) waive any rights of material value relating to the Purchased
Contracts;

(k) materially modify, amend, alter or terminate...

4/3,KWIC/4 (Item 1 from file: 544)
DIALOG(R)File 544:SEC Online(TM) Proxy Repts
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0283678
CETUS CORP - 1991 Proxy Report

Publication Date: 10/30/91

TEXT:
...5(a), (i) Seller is the sole

and exclusive owner of all right, title and interest in and to all Transferred Intellectual Property and Seller has not granted, nor does there exist by implication or operation of law...

...Closing, permit or enable anyone other than Purchaser or Seller to use any of the Transferred Intellectual Property , (ii) Seller can sell, assign, transfer, convey and deliver to Purchaser all right, title and interest in and to all Transferred Intellectual Property without the consent of any third party, (iii) no Person has any Rights to utilize any Transferred Intellectual Property or sell any products or devices which utilize or incorporate, or which were developed utilizing or incorporating, any Transferred Intellectual Property , and (iv) there is no pending or overtly threatened Claim against Seller asserting (A) that any of the Transferred Intellectual Property infringes or violates the Rights of third parties, (B) that the present or past conduct of the PCR Business infringes or violates the Rights of others with respect to any of the Transferred Intellectual Property , (C) that any Person has any Rights to utilize any of the Transferred Intellectual Property or sell any products or devices which utilize or incorporate, or which were developed utilizing or incorporating, any Transferred Intellectual Property , (D) that any of the Transferred Intellectual Property cannot be sold, assigned, transferred, conveyed and delivered to Purchaser by Seller without consent of...

...determined against Seller, materially and adversely affect Purchaser's ability to utilize any of the Transferred Intellectual Property , and to the best of

[SOURCE PAGE III-19]

Seller's knowledge, no basis for...

...notice to any third parties asserting infringement by such third parties upon any of the Transferred Intellectual Property . Except only as set forth on Schedule 4.5(a), no contract, agreement or understanding exists which would impede or prevent Seller from selling, assigning, transferring, conveying and delivering to Purchaser the entire right, title and interest of Seller in and to the Transferred Intellectual Property . Except only as set forth on Schedule 4.5(a), Seller is not subject to any bars or other restrictions with respect to its Rights to practice under any of the Transferred Intellectual Property , and no bars or other restrictions on Purchaser's Rights to practice under any of the Transferred Intellectual Property will be created by, or will, by reason of any action or inaction of Seller led Seller to form the opinion that any of the Transferred Intellectual Property is invalid.

(b) Except only as set forth on Schedule 4.5(b), (i) all...

...such Claim exists. Except only as set forth on Schedule 4.5(b), no contract, agreement or understanding exists which would impede or prevent the license of Purchaser by Seller to...

...of such licensed PCR Intellectual Property, or Seller's use thereof, infringes or violates the Rights of third parties, or that Seller's present or past conduct of the PCR Business infringes or violates the Rights of others with respect to any of such licensed

PCR Intellectual Property, and to the...

...the contrary, Seller
shall have no Liability for Damages hereunder, and Purchaser shall have no rights under Sections 8.1 and 12.1(b), in any case as a consequence of...

...PECI's business, any of the Acquired Assets, Seller's
execution and delivery of this Agreement or the consummation of the transactions contemplated hereby. Except only as set forth on Schedule...

...with, any governmental authority is
required in connection with the execution and delivery of this Agreement by Seller or the consummation by Seller of the transactions contemplated hereby other than those...
...neither Seller nor PECI has received, and there does not exist, any notice, notification or inquiry that has been provided to Seller or PECI by any governmental agency to the effect...Business and the PCR Technology, is not a party to
any written or oral:

(i) agreement , contract, commitment or arrangement with any labor union or other representative of employees;

(ii) agreement , contract or commitment for the future purchase of, or payment for, supplies or products, or...

...or more or which is not
terminable without cost to Purchaser within 30 days;

(iii) agreement , contract or commitment to sell or supply products or to perform services, involving in any...

...not terminable without cost to Purchaser within 30 days;

(iv) representative, distributorship or sales agency agreement , contract or commitment conferring sales or distribution Rights , including those which relate in whole or in part to any PCR Intellectual Property, PCR Products or PCR Services;

(v) agreement , contract or commitment for any capital expenditure in excess of $50,000;

(vi) material agreement or contract not made in the Ordinary Course of Business;

(vii) agreement , contract, commitment or arrangement which limits, or purports to limit, the ability of Seller to...

...development of the PCR Technology or
operation of the PCR Business; or

(viii) any other agreement , contract or commitment which continues in effect for a period exceeding six months from the...

...Ordinary Course
of Business.

(c) Acquired, sold, licensed, assigned, transferred or permitted to lapse any Rights with respect to any PCR Intellectual Property except in the Ordinary Course of Business.

4...

4/3,KWIC/5 (Item 2 from file: 544)
DIALOG(R)File 544:SEC Online(TM) Proxy Repts
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0283666
CETUS CORP - 1991 Proxy Report

Publication Date: 10/30/91

TEXT:
...of
Seller or any Contract or PCR Permit, including, without limitation, any Seller Technology License Agreement , or any other mortgage, bond, indenture, agreement , collective bargaining agreement , franchise or other instrument or obligation to which Seller is a party or to which...

...to
the terms of any such Contract or PCR Permit or other mortgage, bond, indenture, agreement , franchise or other instrument or obligation; (iii) violate any judgment, order, injunction, decree or award...

...any Person. A complete list of all required consents to the transactions contemplated by this Agreement is set forth on Schedule 4.2(b).
4.3. Ownership of Acquired Assets

Except...

...5 (a), (i) Seller is the
sole and exclusive owner of all right, title and interest in and to all Transferred Intellectual Property and Seller has not granted, nor does
there exist by implication or operation of law...

...Closing, permit or enable anyone other than Purchaser or Seller to use any of the Transferred Intellectual Property , (ii) Seller can sell, assign, transfer, convey and deliver to Purchaser all right, title and interest in and to all Transferred Intellectual Property without the
consent of any third party, (iii) no Person has any Rights to utilize any Transferred Intellectual Property or sell any products or devices which utilize or incorporate, or which were developed utilizing or incorporating, any Transferred Intellectual Property , and (iv) there is
no pending or overtly threatened Claim against Seller asserting (A) that any of the Transferred Intellectual Property infringes or violates the
Rights of third parties, (B) that the present or past conduct of the PCR
Business infringes or violates the Rights of others with respect to any of the Transferred Intellectual Property , (C) that any Person has any Rights to utilize any of the Transferred Intellectual Property or sell
any products or devices which utilize or incorporate, or which were developed utilizing or incorporating, any Transferred Intellectual Property , (D) that any of the Transferred Intellectual Property cannot
be sold, assigned, transferred, conveyed and delivered to Purchaser by Seller without consent of...

...determined against Seller, materially and adversely affect Purchaser's ability to utilize any of the Transferred Intellectual Property , and to the best of Seller's knowledge, no basis for any such Claim exists...

...notice to any third parties
asserting infringement by such third parties upon any of the Transferred Intellectual Property . Except only as set forth on Schedule 4.5 (a), no contract, agreement or understanding exists which would impede or prevent Seller from selling, assigning, transferring, conveying and delivering to Purchaser the entire right, title and interest of Seller in and to the Transferred Intellectual Property . Except only as set forth on Schedule 4.5 (a), Seller is not subject to any bars or other restrictions with respect to its Rights to practice under any of the Transferred Intellectual Property , and no bars or other restrictions on
Purchaser's Rights to practice under any of the Transferred Intellectual
Property will be created by, or will, by reason of any action or inaction of Seller...

...attention of Seller which has led Seller to form the opinion that any of the Transferred Intellectual Property is invalid.

(b) Except only as set forth on Schedule 4.5 (b), (i) all...

...such Claim exists. Except only as set forth
on Schedule 4.5 (b), no contract, agreement or understanding exists which would impede or prevent the license of Purchaser by Seller to...
...of such licensed PCR Intellectual Property, or
Seller's use thereof, infringes or violates the Rights of third parties, or that Seller's present or past conduct of the PCR Business infringes or violates the Rights of others with respect to any of such licensed PCR Intellectual Property, and to the...

...the contrary, Seller
shall have no Liability for Damages hereunder, and Purchaser shall have no Rights under Sections 8.1 and 12.1 (b), in any case as a consequence of...

...the
PCR Business, any of the Acquired Assets, Seller's execution and delivery of this Agreement or the consummation of the transactions contemplated hereby. Except only as set forth on Schedule...

...with, any governmental authority is
required in connection with the execution and delivery of this Agreement by Seller or the consummation by Seller of the transactions contemplated hereby other than those...neither Seller nor PECI has received, and there does not exist, any
notice, notification or inquiry that has been provided to Seller or PECI by any governmental agency to the effect...

...PCR
Technology in the Territory, is not a party to any written or oral:

(i) agreement , contract, commitment or arrangement with any labor union or other representative of employees;

(ii) agreement , contract or commitment for the future purchase of, or payment for, supplies or products, or...

...or more or which is not
terminable without cost to Purchaser within 30 days;

(iii) agreement , contract or commitment to sell or supply products or to perform services, involving in any...

...not terminable without cost to Purchaser within 30 days;

(iv) representative, distributorship or sales agency agreement , contract or commitment conferring sales or distribution Rights , including those which relate in whole or in part to any PCR Intellectual Property, PCR Products or PCR Services;

(v) agreement , contract or commitment for any capital expenditure in excess of $50,000;

(vi) material agreement or contract not made in the Ordinary Course of Business;

(vii) agreement , contract, commitment or arrangement which limits, or purports to limit, the ...development of the PCR Technology or operation of the PCR Business; or

(viii) any other agreement , contract or commitment which continues in effect for a period exceeding six months from the...

4/3,KWIC/6 (Item 1 from file: 660)
DIALOG(R)File 660:Federal News Service
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00147551 SUBFILE: FNS
TITLE: HOUSE FLOOR DEBATE

REGARDING H.R. 5110, THE GENERAL AGREEMENT ON TARIFFS AND TRADE

TUESDAY, NOVEMBER 29, 1994
SECTION HEADING: Capitol Hill hearing
DATELINE: International news, including United Nations dateline and updated roundups keyed to foreign events
FILING DATE: 941129 YEAR: 1994

APPROXIMATE WORD COUNT: 047249 APPROXIMATE LINE COUNT: 04295

FILING DATE: 941129

...TEXT: REP. GIBBONS: Mr. Chairman, in the long march of civilization, there are certain events that history will record as having been extremely important. This is one of those events. This is ...
... and have functioned under that document since that time. The time has now arrived in history when it is appropriate to modify and to improve on that document...

...our observation of those rules has been good. Now, for the first time in the history of civilization, we have agreed to begin controlling not only the tangible goods, manufactured goods... The history of this century teaches that free trade is the most effective public policy tool that...have borne the impact of the misguided trade agreements our nation has struck for the past two decades. This is not the first GATT, this is the eighth GATT, and after each of the past GATT agreements, as corporate profits have gone up and consumer prices have gone up in...And so this is in our interest . That's why the WTO is in the interest of this country. And frankly, if in fact the United States wants to keep unemployment down, keep interest rates down, inflation down, we're going to have to be looking for new markets...

...REP. MARCY KAPTUR (D-OH): Yes, Mr. Speaker, I would like to inquiry as to the amount of time remaining at each of the stations please... The laws applicable to the esoteric issue of

intellectual property and the concern of special interest matters contained in GATT are points of contention, but far too complex to be resolved...

... have a chance to be responsible -- right after the election, to act in the best interest of this country, simply because GATT will put more money in people's pockets. Consumer...true. Many members understand certain parts of it, but that's been true in the past on our trade laws. There's nothing more complicated than trade laws except probably the...S. products, including many U.S. agricultural products which have been wrongly restricted in the past . GATT will cut foreign tariffs on U.S. exports by 43 percent and trigger incredible...REP. KAPTUR: Yes, I'd like to inquire as to the remaining time, please, on all sides... rules of law. They're much more comfortable with secret tribunals with no conflict-of- interest rules...Arthur Vandenberg joined together toformulate the Marshall Plan, and, like that historic moment in our history , today's vote sets a stage and a platform for America's role in an...smoke and mirrors. This legislation, which supposedly deals with international trade, will eliminate the minimum interest payment on U.S. savings bonds...are going to be voting on the most important piece of trade legislation in the history of the world and they, with all due respect, are no longer members and don...

...Section 301, which has been used very effectively in the past against Japan and others, to try to make sure that if they don't let...

...122 against us. Many of them -- most of them -- have voted against us in the past in the U.N., and we're going to pay for 23 percent of the...

...This is not new, GATT isn't. This is the eighth GATT agreement in history , the eighth. Not the first, but the eighth. And we have a $150 billion trade...The Uruguay Round goes farther than any previous agreement by addressing areas of trade long ignored. For the first time the intellectual property rights , U.S. entrepreneurs will be protected. For the first time services are covered. For the...And I recognize that in the past two years that this agreement has been approved that we've had better market access...us. This administration has betrayed us, just as this legislation is a betrayal of American interest . Let's defeat this monster, this GATT monster, before it devours American competitiveness...There are a number of changes in copyright that will advance our interest in the area of bootlegging, which is going to basically protect our country. So, anybody...for many of the reasons so well stated by the chairman of the Subcommittee on Intellectual Property and the Courts...more trade for our country. Let's say yes to the largest tax cut in history . Let's say yes to more jobs. Let's say yes to America's role...I could go on and on. But of particular interest to my congressional district, Montgomery County, Maryland and its high-tech corridor is the GATT...

...the future of our country because today we are going to alter the course of history . By adopting this bill, we have the opportunity to boldly pursue new markets and new...a frightened, defeatist and unreliable nation which is unwilling to act in its own best interest and in the interest as well of the world of the world...interests to be dictated by bureaucrats under the WTO, but I am pleased at an agreement between the White House and Senator Dole reached last week to give our nation a way out of the WTO if U.S. rights are violated, and we should not hesitate to exercise the Clinton-Dole agreement .

...

... terrific chance for us to do something that we haven't done probably in the history of this world. It's a little overstatement to say that, but certainly since World...and that approval of the Uruguay Round trade agreement is clearly in the overall best interest of the United States...

...Mr. Speaker, history has clearly shown that protecting certain uncompetitive industries through government tariffs simply does not work...First of all, let me note that although there were hearings on the intellectual property rights and patent areas of this agreement in August, the fact is that no one in this body was permitted to have...the GATT implementation language in the first place. It is not required by the GATT agreement to have a change in the patent law that reduces the patent protection for American citizens. It is not required. That is not part of the GATT agreement . This is something that is being slipped into this legislation knowing that they can use this as a cover to destroy the rights that are worth billions of dollars that now are the rights of Americans. This is one of the worst and most obscene rip-offs that I...in the world economic outlook will be shaken. That could cause financial instability and higher interest rates pulling the U.S. and world economies back into recession... as a party have experienced nearly a 20 percent drop in real wages over the past two decades. They are, as Bill Clinton reminded us, working harder for less. No wonder...rules. GATT cuts taxes on U.S. exports. This is the largest tax cut in history -- $570 billion. GATT implements rule changes to improve the world trading system. The dispute resolution...forward. I think it's wrong to say that because it may be in the interest , overall of the economy, we will ignore the negative effects it will have on those... in this century have prospered, those which have chosen protectionism have not. In fact, if history is a guide, protectionism belies its name. It provides job security for politicians, not workers... the best sense of the word. HR-5110 is truly and unequivocally in the national interest .

...grown more dramatically than those of the other 49 states in the union in the past several years. Last year our exports totaled over $20 billion and we're looking at...REP. MARCY KAPTUR (D-OH): Yes. Madame Chair, could I inquire as to the time remaining at each station... answer for me why is the Federal Reserve every month or three months raising the interest rate. Because our productive capacity in the United States today is already at almost maximum...

?

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SHOW FILES; DS
File  13:BAMP 2004/Feb W4
         (c) 2004 Resp. DB Svcs.
File  16:Gale Group PROMT(R) 1990-2004/Mar 04
         (c) 2004 The Gale Group
File  18:Gale Group F&S Index(R) 1988-2004/Mar 04
         (c) 2004 The Gale Group
File  20:Dialog Global Reporter 1997-2004/Mar 04
         (c) 2004 The Dialog Corp.
File  75:TGG Management Contents(R) 86-2004/Feb W4
         (c) 2004 The Gale Group
File 180:Federal Register 1985-2004/Mar 04
         (c) 2004 format only The DIALOG Corp
File  27:Foundation Grants Index 1990-2004/Feb
         (c) 2004 Foundation Center
File 388:PEDS: Defense Program Summaries 1999/May
         (c) 1999 Forecast Intl/DMS
File 449:IMS Company Profiles 1992-2004/Mar
         (c) 2004 IMS Health & Affiliates
File 485:Accounting & Tax DB 1971-2004/Feb W4
         (c) 2004 ProQuest Info&Learning
File 541:SEC Online(TM) Annual Repts 1997/Sep W3
         (c) 1987-1997 SEC Online Inc.
File 542:SEC Online(TM) 10-K Reports 1997/Sep W3
         (c) 1987-1997 SEC Online Inc.

Set     Items   Description
S1         93   (RIGHTS (S) AGREEMENT) AND INTEREST AND ((INTELLECTUAL (W)
               PROPERT?) (N2) TRANSFER?) AND PD<=000320
S2          0   S2 AND (ONLINE OR WWW OR WEB? OR INTERNET)
S3         28   S1 AND IDENTIF?
S4          6   (RIGHTS (S) AGREEMENT) AND INQUIR? AND (HISTORY OR PAST) A-
               ND INTEREST AND ((INTELLECTUAL (W) PROPERT?) (N2) TRANSFER?) -
               AND PD<=000320
?
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3/9/7 (Item 1 from file: 75)

DIALOG(R)File 75:TGG Management Contents(R)
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00220207 SUPPLIER NUMBER: 54133747 (THIS IS THE FULL TEXT)

The architecture of cooperation: managing coordination costs and appropriation concerns in strategic alliances.

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ABSTRACT: This study examines why firms choose different governance structures across their alliances. We focus on the coordination costs in alliances that arise from interdependence of tasks across organizational boundaries and the related complexity of ongoing activities to be completed jointly or individually. We use a typology of alliance governance structures that differentiates structures by the magnitude of hierarchical controls to test hypotheses predicting alternative contractual choices. We use empirical data on alliance announcements in three worldwide industries over a 20-year period to assess which factors explain the choice of alliance types. The findings suggest that the magnitude of hierarchical controls in contractual relationships such as alliances is influenced by the anticipated coordination costs and by expected appropriation concerns. (Reprinted by permission of the publisher.)

TEXT:

Corporations have increasingly seen alliances as attractive vehicles through which they can grow and expand their scope, and the rate at which interfirm alliances have been formed in the last two decades has been unprecedented (Harrigan, 1986; Anderson, 1990). A notable characteristic of this growth has been the increasing diversity of interfirm alliances. The nationalities of partners, their motives and goals in entering alliances, and the formal structures used to organize the partnerships have all become increasingly varied. The variety of organizing structures implies that firms face numerous choices in structuring their alliances. This study examines why firms choose the specific governance structure they do in alliances. It explores some of the conditions at the inception of an alliance that influence the formal structure used to govern it.

An alliance is commonly defined as any voluntarily initiated cooperative agreement between firms that involves exchange, sharing, or co-development, and it can include contributions by partners of capital, technology, or firm-specific assets (e.g., Harrigan, 1986; Parkhe, 1993a; Gulati, 1998). The governance structure of the alliance is the formal contractual structure participants used to formalize it. Prior research has distinguished among such formal structures in terms of the degree of hierarchical elements they embody and the extent to which they replicate the control and coordination features associated with organizations, which are considered to be at the hierarchical end of the spectrum (e.g., Pisano, Russo, and Teece, 1988; Pisano, 1989; Gulati, 1995a). At one end are joint ventures, which involve partners creating a new entity in which they share equity and that most closely replicate the hierarchical control features of organizations. At the other end are alliances with no sharing of equity that have few hierarchical controls built into them.

Organizational scholars have long studied the basis for hierarchical controls within organizations and viewed them as a mechanism to manage uncertainty. Prior research on contract choices in alliances and the extent of hierarchical controls they embody has been influenced primarily by transaction cost economists, who have focused on the appropriation concerns in alliances, which originate from pervasive behavioral uncertainty and contracting problems (e.g., Pisano, Russo, and Teece, 1988; Pisano, 1989; Balakrishnan and Koza, 1993). Following this perspective, scholars have

suggested that hierarchical controls are an effective response to such concerns at the time the alliance is formed. Thus, the greater the appropriation concerns, the more hierarchical the likely governance structures for organizing the alliance. The logic for hierarchical controls as a response to appropriation concerns is based on their ability to assert control by fiat, provide monitoring, and align incentives. The operation of such a logic was originally examined in make-or-buy decisions (e.g., Monteverde and Teece, 1982; Walker and Weber, 1984; Masten, Meehan, and Snyder, 1991). The same logic by which firms choose between the extremes of making or buying is also expected to operate, once firms have decided to form an alliance, in their choice of governance structure: when firms anticipate appropriation concerns, they are likely to organize alliances with more hierarchical contracts.

While researchers have made significant advances in classifying alliance governance structures and in identifying their determinants, our understanding of alliances is limited by two factors inherent in much of that research. First, the research on alliances focuses on the anticipated appropriation concerns as the primary basis of the choice of governance structure (Williamson, 1985, 1991). Building on the idea that an important feature of hierarchical controls is their ability to manage potential moral hazards, transaction cost economists suggest that hierarchical controls arise in alliances when participants anticipate such concerns. Even resource dependence theorists, who have looked primarily at the origin of ties rather than their structure, have suggested similar moral hazard concerns as a reason why firms may transform pure exchange relations into power relations (Pfeffer and Nowak, 1976).

While appropriation concerns originating from contracting obstacles, combined with pervasive behavioral uncertainty, can clearly be an important concern, once firms decide to enter an alliance, there is another set of concerns that arises from anticipated coordination costs. By coordination costs we mean the anticipated organizational complexity of decomposing tasks among partners along with ongoing coordination of activities to be completed jointly or individually across organizational boundaries and the related extent of communication and decisions that would be necessary.(1) Coordination considerations are extensive in alliances. Litwak and Hylton (1962: 399) noted that the specialized coordination in interorganizational relations is a challenge, "since there is both conflict and cooperation and formal authority structure is lacking." As a result, the anticipated interdependence resulting from the logistics of coordinating tasks can create considerable uncertainty at the outset of an alliance that is different from appropriation concerns. The uncertainty for participants concerns the way activities will be decomposed and integrated and the extent to which there is likely to be an ongoing need for mutual adaptation and adjustment.

The distinction between coordination costs and appropriation concerns can be understood with a hypothetical example.

Imagine that an alliance is formed between two firms that have complete confidence in each other and face no appropriation concerns whatsoever. Despite this frictionless situation, they must still coordinate the division of labor and the interface of activities and products between them. This creates considerable uncertainty that alliance partners consider at the time they form an alliance and attempt to answer in structuring the relationship. Hierarchical controls can be an effective solution in situations of high anticipated coordination costs. As noted by Barnard (1938), Chandler (1977), Thompson (1967), and others, an important basis for hierarchical controls is' their ability to provide superior task coordination, especially in situations involving high interdependence and coordination.

A second concern with prior research on the governance structure of alliances is that researchers in this area have broadly classified alliances as equity or nonequity and have considered the presence of shared equity in alliances as synonymous with hierarchy. They have justified this combination on the grounds that all equity alliances have similar incentive properties - shared ownership and controls. The use of equity to indicate hierarchical controls is logical, given the emphasis of prior researchers

on the agency features of such controls, because equity provides an effective means to address agency concerns, but the presence of equity sharing also masks differences across each type of structure and provides only a partial assessment of the original basis for classifying the governance structure of alliances: degree of hierarchical control. Each governance structure not only presents distinct levels of hierarchical controls, but how such controls manifest themselves may also differ. Furthermore, implicit in this typology is the idea that the presence of hierarchical controls in alliances is an either- or proposition, which is questionable.

The present study addresses these problems by proposing several hypotheses in which we examine the influence of both anticipated coordination costs and appropriation concerns at the outset of alliances in explaining the choice of governance structure. We suggest that this choice is not only determined by concerns of appropriation, as previously suggested, but is also influenced by concerns about coordination costs resulting from the extent of interdependence expected by the partners. We use Thompson's (1967) distinction between pooled, sequential, and reciprocal interdependence to differentiate varying degrees of interdependence in three types of alliances. We test our predictions about alliance structure with comprehensive data on alliances formed between 1970 and 1989 in three industrial sectors worldwide.

THEORY

Coordination Costs and Interdependence as an Organizing Principle

Theories for the use of hierarchical controls have primarily focused on explaining structure within organizations and the choice between markets and organizations. The motor behind the theories for hierarchical controls is the management of uncertainty, but different perspectives have emphasized alternative facets of uncertainty. Transaction cost economics has focused primarily on the manifest presence of behavioral uncertainty which, when combined with certain contracting situations, enhances appropriation concerns and makes it difficult and costly to write contracts (Williamson, 1985). This can be further compounded by exogenous shocks, which may require subsequent adaptation by the partners (Williamson, 1991). While the importance of behavioral uncertainty and appropriation concerns as a rationale for hierarchical controls is well understood, the role of anticipated coordination costs and the uncertainty associated with them as a basis for hierarchical controls has been less developed and may be equally important.

The importance of coordination costs as a basis for hierarchical controls has been emphasized for the organization of activities within firms (Lawrence and Lorsch, 1967; Thompson, 1967), and organizational sociologists have referred to hierarchical controls as superior information-processing mechanisms that result from the increasing division of labor and the uncertainty originating from the need to coordinate interdependent subtasks (Galbraith, 1977: 93). They have built on the work of Barnard (1938), who noted the ability of organizational hierarchies to mitigate the uncertainty resulting from coordination and control of complex and interdependent tasks by creating cooperation and coordination among organizational members, and Chandler (1977), who emphasized the significance of coordination in hierarchical structures. Also, in recent years, transaction cost economists have begun to examine issues such as "temporal specificity," or the importance of timing in receipt of goods or services, that are related to coordination costs (Masten, Meehan, and Snyder, 1991).

Concerns about anticipated coordination costs are particularly salient in strategic alliances, which can entail significant coordination of activities between the partners and yet have to be managed without the benefit of the structure and systems available in traditional hierarchies (Litwak and Hylton, 1962). It arises from the complexity of ongoing coordination of activities to be completed jointly or individually across organizational boundaries and the difficulties associated with decomposing tasks and specifying a precise division of labor across partners in the alliance, all of which require ongoing communication and decisions. The extent of such concerns in an alliance is best encapsulated by the level of

interdependence that is necessary for the alliance partners to complete tasks (Thompson, 1967). At one extreme, partners in an alliance may anticipate minimal engagement between the partners and, at another, extensive coordination may be necessary. Many researchers have testified to the complexities associated with the interdependence of activities across partners in strategic alliances (Doz, Hamel, and Prahalad, 1989; Ring and Van de Ven, 1992), yet the implications of varying levels of anticipated interdependence and coordination costs for the governance structure of interfirm alliances remain unexplored.(2)

The concept of interdependence is a fundamental principle defining the costs of coordination within organizations that dates back to the early work of systems theorists (Ashby, 1956; Katz and Kahn, 1966) and was later developed by Thompson (1967) and others.(3) Scholars have applied it primarily to studying the internal design features of organizations and have devoted considerable effort to its elaboration and measurement. Organization design scholars have in fact referred to the challenges posed by interdependence as "coordination costs" (McCann and Galbraith, 1981). As interdependence or coordination costs increase, information-processing costs can also rise (Galbraith, 1977), as can pressure for fast responses (Emery and Trist, 1965) and conflict; ultimately, it can lead to a decline in performance (Pondy, 1970).

The extent of the anticipated interdependence between partners at the time they form an alliance can vary substantially and depends on the tasks included and the likely division of labor in the partnership, all of which are a function of the strategic rationale for the alliance. At one extreme, an alliance may have a simple division of labor with minimal ongoing adjustments that require each partner to share information about the progress of its initiatives for the partnership to achieve strategic goals. At the other extreme, the likely interdependence can be extensive, resulting from the anticipation of a complex and overlapping division of labor that will entail continuing mutual adjustments between partners and require each partner to link specific activities with other partners closely and regularly. The higher the anticipated interdependence between alliance partners, the greater the magnitude of expected coordination costs. While the anticipated interdependence across partners in an alliance may also influence the extent of the appropriation concerns partners experience (e.g., Stinchcombe, 1985), the primary concerns from interdependence are the administrative challenges of coordinating tasks between partners.

For two firms considering an alliance, the greater the need for ongoing task coordination and joint decision making between the partners in an alliance, the higher the anticipated level of interdependence and coordination costs. Each form of alliance governance structure provides differing degrees of control over and coordination of the activities in a partnership. As a result, firms will seek the governance structures for alliances that will provide the necessary ongoing oversight and coordination. The higher the interdependence among partners, the greater the amount of information they must process while the alliance is in progress (Galbraith, 1977). Partners in such alliances must evolve mechanisms through the governance structure to process the requisite information. Alliances with more hierarchical controls are capable of providing greater coordination and information-processing capabilities than those with fewer controls.

Hierarchical controls in strategic alliances. Contractual relationships such as alliances can include several hierarchical elements embedded in their structure (Stinchcombe, 1985), including (1) a command structure and authority systems to put it in place, as well as systems for certifying which communications are authoritative, (2) incentive systems that facilitate performance measurement and link rewards to performance, (3) standard operating procedures that allow quick decisions to be made by anticipating those decisions in advance, (4) dispute resolution procedures that bypass courts and markets by specifying a hierarchy of entities or individuals to which appeals can be made, and (5) non-market pricing systems, such as cost-plus systems, which enable greater precision in remuneration when changes in specification are made. These hierarchical

elements are present to varying degrees in different governance structures for alliances. While incentive systems and non-market pricing highlight some of the agency features of hierarchical controls previously discussed by transaction cost economists, the other elements concern the coordination capabilities of hierarchical controls in alliances. For instance, the command structure, authority systems, and standard operating procedures all make it easier to coordinate tasks between partners by clarifying decision-making procedures and anticipating issues before they arise.

Hierarchical elements in alliances can effectively address the anticipated coordination costs resulting from interdependence for several reasons. The standard operating procedures, command structure, and authority systems in hierarchical governance structures in alliances typically include planning, rules, programs, or procedures, which March and Simon (1958) identified as key means for task coordination. Planning involves presetting schedules, outcomes, and targets; and rules, programs, and procedures emphasize formal controls in the form of decisions made a priori for various likely scenarios. All of these serve the common purpose of minimizing communication, simplifying decision making, reducing uncertainty about future tasks, and preventing disputes (Pondy, 1977). In alliances, hierarchical controls institutionalize, or formalize, interactions between partners (Van de Ven, 1976). In addition to regularizing meetings between partner representatives, such hierarchical controls may also formally designate roles for the partners. In joint ventures, which may involve the greatest extent of hierarchical controls, this type of control is implemented at the time of inception, when formal roles are allocated. Formalization makes the division of labor and the interactions between partners more predictable and allows joint decisions to be made more by rules than by exception. Because hierarchical controls clarify boundaries on decisions and activities, they simplify decision making (Galbraith, 1977).

While the mutual agreement about roles and responsibilities limits negotiation on each issue and preempts conflicts between interdependent units in the future, hierarchical governance structures for alliances may also include procedures for resolving disputes that arise as partners deal with task coordination and the division of labor. These procedures anticipate disputes and try to bypass adjudication by the courts by specifying a hierarchy of avenues for dealing with such concerns as they arise. Such alternative forums not only limit the scope of disputes, they also allow partners to discover joint solutions to more effective coordination. The presence of such systems in hierarchical structures gives them confidence that such issues will be adequately dealt with if they arise.

The incentive systems and non-market pricing elements of hierarchical controls most typically occur in alliances that create autonomous entities, such as joint ventures. Creating a separate entity makes it easier to monitor each party's contributions and the performance of joint activities while also aligning incentives for each of them. It also reduces ongoing market price haggling between partners by locating all resources and expenses within a single entity that is jointly owned. The creation of an autonomous entity can also simplify coordination in alliances. Such alliances provide a high level of discretion to the entity in which the joint activities are being conducted, which provides a dedicated management with a mandate to make decisions that optimize the activities contributed by each partner toward the accomplishment of their joint goals. An autonomous alliance such as a joint venture thus echoes Galbraith's (1977) notion of self-contained tasks, since the discrete entity is provided with its own set of resources to perform the assigned task. Such an alliance addresses anticipated coordination costs by limiting future discussions between partners on the precise division of labor and focuses attention on the outputs, since the inputs have already been agreed upon at the outset. It delineates clear roles for each partner, both through the separate management team and through its own board of directors. More important, it disperses decision making to local management, which leads to concerted decision making by the alliance partners. Much like Chandler's (1977) M-form organization, many hierarchical alliances such as joint ventures

have their own strategic planning and resource allocation capability and their own monitoring and control apparatus.

Such autonomous structures can promote interactive planning, in which alliance partners frequently engage in collaborative objective-setting processes. Finally, hierarchical controls in alliances can address anticipated coordination costs by facilitating coordination through informal means, creating a sense of shared purpose that can motivate and guide individual participants and minimize conflict among them (Barnard, 1938; Blau, 1972; Ghoshal and Moran, 1996). Together, these attributes give hierarchical governance structures superior coordination capabilities and make them appropriate in situations of high interdependence and coordination costs.

Each governance structure for alliances is typically associated with distinct types and levels of hierarchical controls, which makes the choice across structures one of choosing the appropriate level of hierarchical controls depending on the extent of anticipated coordination costs and interdependence at the time of the inception of the alliance:

Hypothesis 1: The greater the anticipated interdependence in an alliance, the more hierarchical the governance structure used to organize it.

Appropriation Concerns and the Governance Structure of Strategic Alliances

Several researchers have used a transaction cost logic to study the governance structure of strategic alliances. Although transaction costs, broadly defined, encompass a wide range of elements, the basic thrust of the transaction cost argument as applied to strategic alliances builds on Alchian and Demsetz's (1972) discussion of team production and focuses on appropriation concerns that originate from the pervasive presence of behavioral uncertainty, combined with the difficulties of specifying intellectual property rights, and by the challenges of contractual monitoring and enforcement (Teece, 1986; Oxley, 1997).(4) Theorists talk about the appropriability of rents, usually referring to the ability of firms to capture rents generated by their innovative activities in an industry (Teece, 1986; Levin et al., 1987; Anand and Khanna, 1997). In contrast, when we discuss appropriation concerns in alliances, we are referring to the firm's concern about its ability to capture a fair share of the rents from the alliance in which it is engaged. Such concerns arise from the uncertainties associated with future specifications, cost uncertainties, and problems in observing partners' contributions, all of which aggravate the potential for moral hazards. Such appropriation concerns occur to varying degrees in most alliances.

Prior researchers have linked the anticipation of appropriation concerns at the time the alliance is formed with the specific governance structure used to formalize the alliance, suggesting that the greater the potential concerns, the more hierarchical the contract used (Pisano, Russo, and Teece, 1988; Pisano, 1989; Oxley, 1997). According to this logic, more hierarchical controls provide greater incentive alignment than fewer hierarchical controls (Alchian and Demsetz, 1972; Klein, Crawford, and Alchian, 1978; Demsetz, 1988). In discussing hierarchical governance structure, transaction cost economists typically focus on its agency features, which they view as addressing appropriation concerns through control mechanisms such as fiat, providing monitoring, and aligning incentives (Williamson, 1975, 1985). Hierarchical structures are thus thought to be more applicable when concerns of appropriation are potentially high. Empirical evidence for such explanations of alliance structure has been provided by Pisano (1989), in a study of the biotechnology sector, and by Pisano, Russo, and Teece (1988), in a study of the telecommunications sector.

Concerns about appropriation can vary with the specific circumstances of an alliance at its inception and arise because of the difficulty of writing complete contracts. This difficulty is exacerbated when technology exchange or sharing is involved and when the limits of the technology being transacted upon are difficult to specify (Merges and Nelson, 1990; Anand and Khanna, 1997; Oxley, 1997). Two conditions influence the extent to which such concerns arise: the presence of a technology component in the

alliance and the appropriability regime in the industry. Each of these factors can independently and together influence the extent of appropriation concerns of firms entering an alliance by affecting the difficulties associated with specifying property rights and monitoring and enforcing the agreement.

Technology component in alliance. A primary basis from which prior researchers have examined concerns of moral hazards and appropriation in alliances is the presence of a technology component (Pisano, Russo, and Teece, 1988; Pisano, 1989), which can affect the extent of possible monitoring problems and the possibility of unobserved violation of contracts. Monitoring problems in technology alliances result from the ambiguity surrounding two key issues: What is the technology being transferred, and what are the limits to its use (Anand and Khanna, 1997)? In alliances encompassing technology, it can be difficult to circumscribe, bound, monitor, and codify the knowledge to be included within the alliance, which may lead to concerns about free-riding and possible appropriation of key technology by the partner. Such concerns are further compounded by the peculiar character of knowledge as a commodity, which makes it difficult for parties to assess accurately the value of the commodity being exchanged without complete information from the partner, who may not want to reveal such information because it is proprietary (Winter, 1964; Arrow, 1974; Teece, 1980: 28). This dilemma, which is called the knowledge paradox, can further aggravate concerns about appropriation of rents resulting from poor monitoring possibilities in such exchanges (Barzel, 1982; Hennart, 1988; Balakrishnan and Koza, 1993). The difficulty of transferring tacit research and development (R&D) know-how across organizations adds to these problems (Teece, 1980; Silver, 1984; Mowery and Rosenberg, 1989). Coordination costs can also be a concern in technology alliances, but they are likely to be salient only in a subset that may involve bilateral exchange or joint development. The primary concern of participants entering alliances with any technology component is with the anticipated appropriation concerns. As a result, according to such a logic, firms entering an alliance with a technology component are likely to prefer hierarchical alliances:

Hypothesis 2a: Alliances with an expected technology component are more likely than those without a technology component to be organized with more hierarchical governance structures.

Appropriability regime. Another factor likely to influence the level of appropriation concerns is the strength of the appropriability regime of the industry, which is the degree to which firms are able to capture the rents generated by their innovations (Anand and Khanna, 1997). tn a tight appropriability regime, firms can retain the profits they earn from their proprietary resources, while in a loose regime, these profits are subject to involuntary leakage or spillovers to other firms. The strength of the appropriability regime of an industry is related to patent strength, the value of first-mover advantage, and the ability to maintain the secrecy of an innovation (Teece, 1986; Levin et al., 1987). For alliances, a firm's concerns about appropriation will vary depending on the industry in which the alliance occurs and the degree to which the appropriability regime in the industry is tight or loose (Teece, 1986). If participants in an alliance believe that the appropriability regime is strong, because patent protection is significant, that they can keep trade secrets, or that their first-mover advantage is sufficiently large, they are likely to be less concerned about appropriation in an alliance, and this will be reflected in the formal governance structure used for the alliance. As a result, there should be a relationship between the appropriability regime of the industry and the governance structure of alliances, with more hierarchical structures expected in industries with weak appropriability regimes:

Hypothesis 2b: Alliances in an industry in which appropriability regimes are weak are more likely to be organized with more hierarchical governance structures than are alliances in an industry in which appropriability regimes are strong.

The effects of the appropriability regime are likely to be particularly acute if the alliance has a technology component, because the effects of the appropriability regime principally operate when there is a

knowledge component in the alliance. As a result, partners in technology alliances are likely to experience concerns from appropriability regimes more acutely than those in alliances without a technology component. More specifically, the appropriation concerns anticipated in an alliance are likely to be amplified when potential alliance partners consider a technology alliance in an industry with a weak appropriability regime. Thus, the effect of the appropriability regime on the governance structure of alliances is likely to be moderated by the presence of a technology component in the proposed alliance:

Hypothesis 2c: The negative relationship between the strength of the appropriability regime in the industry and the extent of hierarchical governance structures of alliances will be stronger for alliances with a technology component than for those without one.

Trust and Governance Structure

Researchers have argued that although expectations of trust ultimately reside with individuals, it is possible to think of interfirm trust in economic transactions (Macaulay, 1963; Zucker, 1986; Gulati, 1995a, 1998). The benefits of trust in economic transactions such as alliances have been strongly emphasized. As Arrow (1974) has suggested, trust is perhaps the most efficient mechanism for governing economic transactions. Trust between alliance partners at the time of an alliance formation should address both coordination-cost and appropriation concerns and thus reduce the need for hierarchical controls in the alliance. This is consistent with the notion that three primary control mechanisms govern economic transactions between firms: price, authority, and trust (Bradach and Eccles, 1989). When there is trust, firms no longer consider hierarchical controls to be necessary (Powell, 1990; Ring and Van de Ven, 1992; Gulati, 1995a).

A key consequence of the embeddedness of economic transactions such as alliances in a social structure of trusting relationships is that the partners are likely to have greater confidence in the predictability of each other's actions and thus anticipate lower appropriation concerns when they form an alliance (Granovetter, 1985; Gulati and Gargiulo, 1999). Thus, the presence of interfirm trust at the time of alliance announcement, which obliges partners to behave loyally, can address appropriation concerns by making it easier to assess each other's likely behavior and to enforce property rights. In Levine and White's (1961) terms, such firms are likely to have greater domain consensus and fewer conflicts between them as a result. Entering alliances with partners whom one trusts can also significantly reduce adverse selection problems (Balakrishnan and Koza, 1993).

In addition to mitigating appropriation concerns, trust can alleviate concerns about coordination costs. Interfirm trust can be an extraordinary lubricant for alliances that involve considerable interdependence and task coordination between partners. Firms that trust each other are likely to have a greater awareness, or a willingness to become aware, of the rules, routines, and procedures each follows. Furthermore, since interorganizational trust typically results from the social structure of prior interactions, firms may have developed routines together to enable ease in joint interaction with each other from their prior experience (Gulati, 1995b; Gulati and Gargiulo, 1999). Thus, trusting firms may have greater competence in transacting with each other, which makes the interface between them easier to manage, and the information processing requirements associated with anticipated coordination costs are more easily addressed. While the presence of trust may not allow us to discriminate between coordination-cost and appropriation concerns, trust is distinctive in its ability to address both types of concerns. As a result, the presence of trust between partners is likely to promote fewer hierarchical controls in the alliances between them, not only because concerns of appropriation and behavioral uncertainty are effectively addressed but also because coordination costs are easily managed:

Hypothesis 3: Alliances in which there is less trust between partners are more likely to be organized with more hierarchical governance structures than are those in which there is greater trust.

Classifying Governance Structures

Prior research has generally classified the governance structure of interfirm alliances in terms of their hierarchical components and has typically differentiated alliances by the presence or absence of equity, with alliances involving equity considered to be more hierarchical than nonequity exchanges (Hennart, 1988; Pisano, Russo, and Teece, 1988; Pisano, 1989; Teece, 1992). Equity alliances include any exchange agreement in which the partners share or exchange equity. These include agreements in which partners create a new entity in which they share equity as well as those in which one partner takes an equity interest in the other. Equity has been considered an indicator of hierarchy because it is considered to be an effective mechanism for managing the rent appropriation concerns associated with partnering (Pisano, Russo, and Teece, 1988; Parkhe, 1993a; Moon and Khanna, 1995). Thus, Teece (1992: 20) suggested: "Equity stakes provide a mechanism for distributing residuals when ex ante contractual agreements cannot be written to specify or enforce a division of returns." In joint ventures, this occurs by creating a mutual hostage in the form of shared equity that helps align the interests of all the partners, inasmuch as each partner is concerned about the value of its equity in the alliance. In minority equity investments, the investing partner has an interest in the value of its equity holdings, while the recipient of investments can be legally required to furnish certain verified information to its investors. In equity alliances, the effective shared equity stakes of the firms vary by case, but beyond a certain threshold, the shared ownership structure is expected to provide an effective hierarchical control over the exchange.

While such a scheme is parsimonious, it masks differences in hierarchical controls across different types of structures and ignores the original basis for classifying the governance structure of alliances: degree of hierarchical controls. Also, because this typology considers the presence of equity sharing as a heuristic to indicate hierarchical controls, there has been little serious consideration of the specific governance structures of alliances or the precise levels of hierarchical controls in each and how they manifest themselves. For instance, joint ventures and minority investments provide varying levels of hierarchical control in a partnership, with joint ventures incorporating more hierarchical elements than minority investments. To varying degrees, each includes several "mechanisms for collecting information, deciding, and disseminating information to resolve conflicts and guide interdependent actions" (Galbraith, 1977: 40). In contrast with joint ventures, minority investments typically do not have a separate organizational and administrative structure and are thus relatively limited in their capacity to coordinate activities across partners. In addition to the exchanged equity, joint ventures entail separate administrative entities with their own management structures. Thus, in combining types, researchers have failed to consider the varying degree of hierarchical controls provided by each form of alliance. Moreover, because the presence of equity is an either- or proposition, the hierarchical controls in alliances have been treated similarly, without adequate justification.

We depart from prior efforts here by presenting a typology of alliance structure that does not treat the presence of equity as synonymous with hierarchical controls but, rather, defines three distinct types of alliance governance structures - joint ventures, minority investment, and contractual alliances - and the magnitude and specific types of hierarchical controls typically present in each of them. In our previous discussion we described the dimensions of hierarchical controls in alliances to include the following: command structure and authority systems, incentive systems, standard operating procedures, dispute resolution procedures, and non-market pricing systems. Together, these dimensions encompass both the agency and coordination features of hierarchical controls that are likely to be part of various types of alliances. While there may be some variation in the extent and type of hierarchical controls in specific instances, each of the three types of governance structures are typically associated with specific levels and forms of hierarchical controls. Our typology of alliance structures is the basis for testing the hypotheses on the factors likely to influence the choice among alternative governance structures with differing extents of

hierarchical controls present.

At the hierarchical end of the spectrum are joint ventures, which occur when partners create a separate entity in which each owns a portion of the equity. In such alliances, a separate administrative hierarchy of managers oversees day-today functioning and addresses contingencies as they arise. This provides an independent command structure and authority system with clearly defined rules and responsibilities for each partner. The autonomous unit enables creation of an incentive system, because each partner is concerned about the value of its equity in the joint venture. Furthermore, pricing discussions are internalized by the joint venture, which controls much of the input and output resource flows to and from the partner organizations. As part of creating a joint venture entity, partner firms also typically put in place standard operating systems and dispute resolution procedures. Together, these features allow joint ventures to include considerable hierarchical controls within them.

Minority alliances, in contrast, include partnerships in which the firms work together without creating a new entity. Instead, one partner or a set of partners takes a minority equity position in the other (or others). Such alliances introduce a weaker form of control, with a degree of hierarchical controls intermediate between that in joint ventures and that in contractual alliances (Herriott, 1996). Hierarchical supervision is typically created by the investing partner joining the board of directors of the partner that received the investment. The presence of one or more individuals on the board of the partner in a minority alliance introduces a fiduciary role into the relationship and is also a vehicle for hierarchical controls. Since boards ratify most major decisions, the presence of an individual from the investing organization on the investee board ensures that the investor has some form of command and authority system. A concern for the value of its equity provides appropriate incentives for the investor. Furthermore, disputes are easier to resolve through board member intervention if necessary. Finally, while there may or may not be many standard operating procedures with such alliances, board representation does create a forum in which both partners exchange information and can initiate and ratify decisions on a regular basis. Beyond board-level interactions, day-to-day activities are jointly coordinated by the partners and negotiated on an ongoing basis.

Alliances in the third category, contractual alliances, do not involve the sharing or exchange of equity, nor do they entail the creation of new organizational entities. Lacking any shared ownership or administrative structure, contractual alliances are considered more akin to arm's-length market exchanges. Members of the partner firms work together directly from their own organizational confines. Few if any command structures, authority systems, incentive systems, standard operating systems, dispute resolution procedures, or non-market pricing systems are necessarily part of such arrangements. Ongoing activities are jointly coordinated, and new decisions are negotiated by the partners. Contractual alliances include unidirectional agreements such as licensing, second-sourcing, and distribution agreements and bidirectional agreements such as joint contracts and technology exchange agreements. While some of the hierarchical elements discussed may occur in some contractual alliances, they are not necessarily widespread and do not occur on a systematic basis.

METHODS

Sample

The data used in this study are drawn from all alliances announced between 1970 and 1989 in the biopharmaceuticals, new materials, and automobile sectors. Biopharmaceuticals includes both biotechnology firms and pharmaceutical firms.

The new materials sector includes ceramics, polymers, composites, and metals. The automotive sector includes both assemblers and suppliers within the automotive industry. A trade-off made in the design of this research was to limit the sample to three sectors. We ensured that the industries chosen represented a broad spectrum. While biopharmaceuticals and new materials are considered emerging industries, automotives is classified as more mature. Nonetheless, we exercised caution in interpreting the results

from the pooled sample, and the models presented in this study were reestimated separately for each sector to ensure that the results were not sensitive to particular sectors.

We combined data from various sources. More than half the data on alliance announcements came from the Cooperative Agreements and Technology Indicators (CATI) database, collected by researchers at the University of Limburg. The CATI data were collected by examining public announcements in specialized technical journals, books, and business periodicals for various sectors and in the popular business press. We collected additional data on alliance announcements and details on the specific attributes of all alliances from numerous sources, including industry reports, industry-specific articles reporting alliances, and additional materials made available by industry consultants. Multiple sources, when they were available, helped us to verify the alliance's strategic rationale, technology components, and governance structure. For the automotive industry, the sources consulted include Automotive News, Ward's Automotive Reports, U.S. Auto Industry Report, Motor Industry of Japan, and the Japanese Auto Manufacturers Forum; for the biopharmaceutical sector, Bioscan, Ernst & Young reports, and the Biotechnology Directory; for the new materials sector, reports from the Office of Technology Assessment and the Organization for Economic Cooperation and Development; for all sectors, Predicast's Funk and Scott Index of Corporate Change.

The objective of the data collection effort was to cover comprehensively the alliances formed within the selected industries. Only alliances that had actually been formed were included - reports of probable future alliances were excluded. The complete alliance dataset includes information on 1,570 alliances formed by American, European, and Japanese firms between 1970 and 1989. We took pains to ensure that the dataset fully covered all alliances in each industry for each year of the study period. It is impossible to gauge the extent or consequences of the possible sample selection bias resulting from including only publicly announced ventures. Since our panel included only large and prominent firms in each industry, which usually get extensive press coverage, we expect this concern to be much less than with a sample of small firms, which receive less public scrutiny.

In our data collection efforts, we used precise criteria to facilitate the coding, which is described further below, and took several steps to ensure coding reliability. First, prior to starting the coding, we carefully controlled the dichotomous choice process by developing a list of synonyms for each choice. We clarified and refined explicit coding rules using 50 alliance announcements not in the sample. The general coding rule applied was to code only explicit references to each choice. Multiple public announcements were consulted from a wide variety of sources listed above. Because the dichotomous choices were clearly specified, the rules for coding were kept simple and straightforward, and multiple sources were consulted, the actual coding of alliances was not a complex task. Also, the clear specification of categories and the simplified coding rules boosted the reliability of our coding. We further attempted to ensure test-retest reliability by recoding a small number of alliances periodically after some time had elapsed since the original coding. Throughout the coding process, the results of the recoding were almost identical to the previous results, and the agreement rate ranged from .96 to 1.00. Overall, we believe that this process resulted in highly reliable coding of the alliance data.

Variables

Dependent variable. We do not believe that treating the presence of equity as synonymous with hierarchical alliances is entirely appropriate. To assess more accurately the factors explaining the degree of hierarchy in alliances, we therefore conducted our analyses with three categories of alliances, arrayed in increasing order of hierarchical controls (hierarchy): contractual alliances (coded 0), minority equity investments (1), and joint ventures (2).

Interdependence. We were interested in assessing the levels of interdependence the partners in an alliance anticipated at the outset, when the alliance was announced. Using Thompson's (1967) distinction between pooled, sequential, and reciprocal interdependence is a parsimonious way of

arraying the degree of interdependence in alliances that underlies coordination costs. These three types of interdependence, although previously discussed in the intraorganizational context, can also be seen in the context of interfirm coordination of activities (Borys and Jemison, 1989). Pooled, or generalized interdependence, denotes situations in which "each part renders a discrete contribution to the whole, and each is supported by the whole," is "coordinated by standardization, and is least costly in terms of communication and decision effort" because it does not require any serial ordering of activities (Thompson, 1967: 54, 64). It exists in alliances when organizations pool their resources to achieve a shared strategic goal, the common benefits arise from combining resources into a shared pool, and each partner uses resources from the shared pool. These relatively small interdependencies entail low coordination requirements but provide partners with benefits from the pooled resources.

In situations of sequential interdependence, the activities of each partner are distinct and are serially arrayed so that the activities of one partner precede those of another, resulting in a higher degree of coordination than in pooled interdependence. Coordination in a sequentially interdependent alliance thus goes beyond the pooling of resources to include the order in which the product or service moves from one organization to the other. The partner producing the original product or service has to perform the task as laid out in plans for the alliance, and the subsequent activities in the alliance then have to be performed in a coordinated fashion for the overall strategy to be successful.

Reciprocal interdependence occurs when units come together to exchange outputs with each other simultaneously. Such exchange entails a pooling of resources by different units, but in addition, each unit is simultaneously dependent on the other because its outputs are the other's inputs. In contrast to pooled interdependence, reciprocal interdependence is more interactive and requires ongoing mutual adjustment by both units and continuous adaptation to each other's circumstances. Each unit must continually anticipate the other's output stream and communicate its own production schedule to the other. These efforts require both units to work closely to ensure that there is requisite mutual adaptation and adjustment.

These three types of interdependence can be arrayed on a scale, with reciprocal encompassing the highest coordination costs due to the need for extensive coordination across the partners (Thompson, 1967). Somewhat less uncertain is sequential interdependence. Least uncertain is pooled interdependence, in which close ongoing coordination is not essential, and coordination demands are limited to broadly aligning the activities of the partners toward joint success.

Following prior research, we identified the anticipated interdependence in an alliance at the time of its inception from its underlying logic of value creation (Borys and Jemison, 1989; Zajac and Olsen, 1993). Alliances are usually formed to create value in a way that each partner alone could not. Different logics for value creation require distinctly different levels of coordination between the partners and hence are indicative of different types of interdependence (Borys and Jemison, 1989: 241). For instance, an alliance in which two partners seek to create value by one of them distributing the other's products is likely to have lower coordination and interdependence than another in which the logic for creating value involves both partners coming together to develop a new product. In Thompson's (1967) classic formulation as well, interdependence among units in an organization was embedded in the logic by which they created value through interacting with each other. That is, the logic for value creation led to distinct levels and types of interaction between adjacent units in a value chain and indicated the level of interdependence between those units.

We gauged the anticipated presence of reciprocal, sequential, or pooled interdependence in an alliance from the strategic rationales given by each partner for its participation in the alliance. The rationales provided by each partner for an alliance at the time of its announcement are an excellent indicator for the interdependence they anticipate, because each rationale suggests a distinct logic for value creation that is associated with a specific level of interdependence necessary for

accomplishing the rationale. From an extensive review of the alliance literature, we identified eight rationales that provided a comprehensive picture of all the value creation logics of the partners entering an alliance: (1) sharing costs/risks, (2) access to financial resources, (3) sharing complementary technology, (4) reducing the time span of innovation, (5) joint development of new technology, (6) access to new markets, (7) access to new products, and (8) sharing production facilities (Contractor and Lorange, 1988; Hagedoorn, 1993). We assessed these rationales of an alliance from the public announcement and coded them separately for each partner in the alliance. In most instances, we examined multiple announcements in a variety of public sources, including the industry-specific trade journals mentioned above, to gauge this measure accurately. The eight categories are not mutually exclusive, and an alliance could include multiple strategic objectives for any partner. Each alliance was coded as involving reciprocal, sequential, or pooled interdependence, using the classification scheme discussed below. Two dummy variables, reciprocal and sequential, capture this distinction and were used to test hypothesis 1. The default category included instances of pooled interdependence. A comparison of the coefficients of the two dummy variables allowed us to look at the differences in effects across reciprocally and sequentially interdependent alliances.

We classified alliances as reciprocally interdependent if the strategic rationales of the partners included sharing complementary technology, jointly reducing the time needed for innovation, or joint development of new technology. Such alliances include those in which the partners are actively seeking to learn from the alliances to broaden or deepen their skills or to develop new skills jointly, all of which require crucial ongoing inputs from all partners and involve high levels of interdependence. Reciprocally interdependent alliances overlap with but are not synonymous with alliances encompassing a technology component. For instance, not all technology alliances are bilateral learning ties, and some can thus include a unilateral transfer of technological know-how that does not create reciprocal interdependence. Also, reciprocally interdependent alliances may involve the joint development of marketing or distribution skills and not include any technology component.

Sequentially interdependent alliances include partnerships in which the output of one partner is handed off to the other, for whom it is an input. We classified an alliance as involving sequential interdependence both when one partner sought to expand its market access or tap into new markets and did so through an alliance with a partner that had marketing and distribution prowess in those markets and when an alliance involved one partner gaining access to new products provided by the other.

Pooled interdependent alliances exist when alliance partners do not depend on each other for inputs or outputs but, rather, pool resources toward shared activities that need not be coordinated on a regular basis. We classified alliances as involving pooled interdependence when partners came together to share high costs and risks, to share financial resources for expensive endeavors, or to build joint production facilities.

Because the unit of analysis here is the individual alliance and not firms, and all partners usually have a voice in determining the alliance's formal governance structure, we wanted to capture the highest level of interdependence anticipated by the partners entering the alliance. We therefore conservatively coded each alliance with the highest level of interdependence anticipated by either partner within it. Alliances in which a partner had multiple strategic rationales or in which the partners had differing rationales were thus placed in one of the three categories according to the highest level of interdependence among them. As a result, we classified an alliance with elements of both reciprocal and sequential interdependence as reciprocal, one with sequential and pooled interdependence as sequential, and so forth. This coding is consistent with Thompson's notion that the three types of interdependence can be arrayed on a scale in which reciprocal interdependence may include elements of sequential and pooled interdependence, and sequentially interdependent situations may also have some pooled elements.

To ensure that our findings were robust, we also ran our estimations

by coding this variable with alternative specifications in which we arrayed all eight original dimensions on a single ordinal scale of interdependence. We did this by first constructing a single variable that took values from 1 to 8 and, second, by introducing seven dummy variables for the eight categories. Our results were consistent with those obtained using Thompson's three-way typology.

Appropriation concerns. We included separate measures for each facet of appropriation concerns partners are likely to anticipate at the time they are forming an alliance: presence of a technology component in the alliance and appropriability regime of the industry. Following prior empirical research, we first included a measure, R&D, to capture the presence of a technology component within the alliance (1 = technology component, 0 = no technology component). R&D alliances included those that encompassed a technology component in the agreement. They could involve exchange, unilateral transfer, sharing, or co-development of technology or elements of all the above. Such alliances could encompass basic R&D, product development, or any other technology-related efforts. Non-R&D alliances typically included those that primarily involved production, distribution, or marketing. We used this variable to test hypothesis 2a on the role of appropriation concerns resulting from the presence of a technology component in determining the governance structure of alliances.

We also assessed the magnitude of appropriation concerns by including measures to capture systematic differences in appropriability regimes across industries. We controlled for sector differences with two dummy variables, new materials and automotive; biopharmaceuticals was the default sector. These variables allowed us to test hypothesis 2b on the role of appropriation concerns resulting from the appropriability regime of the industry in determining the governance structure of alliances. Prior research suggests that biopharmaceuticals has the strongest appropriability regime and automotives the weakest, with new materials lying in between (Levin et al., 1987; Arora and Gambardella, 1994). While it is possible that the strength of appropriability regimes may have changed over our 20-year observation period, our discussion with experts suggests that there have been no dramatic changes in any of these industries to alter the relative levels of appropriability regimes across them. Thus, while there may have been shifts in the absolute levels of the strength of appropriability regimes, relative differences across the three seem to have remained stable. Since our concern is with the relative differentiation across the three, any changes over time should not affect our findings.

We used the interaction between the presence of technology and industry participation to test hypothesis 2c, which predicted that the presence of a technology component in an alliance would moderate the effect of appropriability regimes on the structure of the alliance.

Trust. We included several measures to capture interorganizational trust and test hypothesis 3, suggesting that trust can reduce the likelihood of hierarchical controls in alliances. One mechanism through which such trust is built is through prior alliances (Ring and Van de Ven, 1992; Gulati, 1995a; Gulati and Gargiulo, 1999). The idea of trust emerging from prior contact is based on the premise that through ongoing interaction, firms learn about each other and develop trust around norms of equity, or knowledge-based trust (Shapiro, Sheppard, and Cheraskin, 1992). Prior ties can also promote deterrence-based trust, resulting from viewing prior ties as possible hostages, which deters partners from untrustworthy behavior because they are concerned about potential sanctions, including the dissolution of prior alliances and loss of reputation. Firms having prior alliances with each other will trust each other more than partners who have no prior history with each other. Although it is possible that a prior experience may be a negative one, those firms with bad prior experiences are unlikely to form subsequent alliances with each other. In fact, entering a repeated tie can be a way to mitigate adverse selection problems, because the firms can have reliable firsthand information on each other from prior interactions (Balakrishnan and Koza, 1993). Thus, repeated interaction between two firms can be considered one reasonable indicator of trust between them.

We used an indicator, repeated ties, to record the number of prior

alliances the two firms had entered into since 1970 to test hypothesis 3 (0 = first-time alliance). We also examined whether the nature of prior ties (i.e., if they were joint ventures, minority equity investments, or contractual alliances) influenced the governance structure chosen in subsequent alliances. Since this measure could also be capturing experience-related effects resulting from the partners developing routines for working with each other, we included several other measures for trust as well (Nelson and Winter, 1982).

The discussion of trust in alliances has been extended to comparisons of international and domestic and multilateral and bilateral alliances and is used here to further test hypothesis 3. Prior research indicates systematic differences in the behavior of participants in alliances involving partners of different nationalities (Parkhe, 1993b) and also in choices between modes of entry into new geographic markets (Kogut and Singh, 1988; Singh and Kogut, 1989). Recent evidence also suggests systematic differences in the level of patent protection afforded by different countries (Mansfield, 1993). Researchers have argued that cross-border alliances have greater obstacles for building trust and a concomitant higher potential for appropriation concerns than domestic alliances because the difficulties of specifying intellectual property rights, legally enforcing intellectual property, and monitoring partner activities are greater among cross-border firms (Pisano, 1990; Oxley, 1997). As a result, greater trust is expected in domestic alliances than in others. To assess whether alliances between cross-regional partners are likely to have more hierarchical controls and to examine differences across local partner alliances in different global regions, we included three dummy variables, USA, Europe, and Japan, indicating whether an alliance was between partners in those regions. The default was a cross-region alliance (1 = partners of that region, 0 = partners of different regions).

Increasing the number of partners in an alliance can also limit the level of trust between alliance partners (Parkhe, 1993b). Including more partners in an alliance can make identifying and realizing common interests more difficult, which complicates the task of ensuring trust between alliance partners. Furthermore, simply having more partners makes it less likely that all the partners will trust all others in the alliance. Monitoring each partner's contributions and introducing appropriate sanctions in the face of free-riding is harder to implement when there is a large group of participants init difficult to introduce incentive structures that may foster trust. To capture any effects that arose from the number of partners in the alliance, we computed that number and recoded it as a dummy variable, multilateral, with a value of 1 if an alliance was multilateral and a value of 0 if an alliance was bilateral.

Controls. We controlled for temporal trends in alliances and included dummy variables for each year. We included 19 dummy variables for the 20-year period covered in the study, with the default year being 1970. For simplicity of presentation, the results for these dummy variables are not reported in the tables. We also included two control variables, percent joint venture and percent minority investment, assessing the influence of the frequency with which specific types of alliances had been announced in each industry on the choice of governance structure. We counted the number of alliances announced in an industry in the prior year and computed the percentage of those that were of each type. Percent joint venture and percent minority investment capture the percentage of alliances that were joint ventures and minority equity investments, respectively, in the previous year. In a limited way, this calculation tests for the institutionalist claim that firms may mimic the contracts other firms in the industry use to organize their alliances (Fligstein, 1985; Davis, 1991). An alternative interpretation of the variables is that they capture the net effect of the various macro-economic factors within an industry that may influence the formation of particular types of alliances (Amburgey and Miner, 1992).

Table 1 describes the variables included in the analysis and summarizes the predicted signs for the effects of each independent variable.

(TABULAR DATA FOR TABLE 1 OMITTED)

Statistical Model

We assessed the choice between joint ventures, minority equity investments, and contractual alliances with a multinomial logistic regression model. Since the choice among these three alternatives was deemed to be a single step and not nested, we rejected the alternative of using a conditional logit. We later reestimated all models with conditional logit and ordered logit models and found that the results were robust. The general specification of the multinomial logistic regression model applied here was as follows:

ln ((P.sub.i)/(P.sub.o)) = a + (b.sub.j)(X.sub.j),

where (P.sub.i) is the probability of an event occurring for the jth case. The two possible events are defined here as a minority equity alliance (i = 1) or a joint venture (i = 2). (P.sub.o) is the probability of a contractual alliance.(5) (X.sub.j) is the vector of independent variables.

RESULTS

Table 2 presents descriptive statistics and correlations for all variables. The descriptive statistics indicate that of the alliances in our sample, 52 percent involved reciprocal interdependence, 24 percent involved sequential interdependence, and the remainder involved pooled interdependence. The total sample of 1,570 alliances included 769 alliances in the new materials industry, 345 alliances in automotives, and 456 alliances in biopharmaceuticals. There was considerable geographic diversity in our sample as well: 27 percent were among U.S. firms, 13 percent were among Japanese firms, 22 percent among European firms, and the remainder were cross-region alliances. Also, 32 percent of the sample involved more than two partners. Of the total alliances, 31 percent were joint ventures, 23 percent were minority equity investments, and the remainder were contractual alliances. Overall, the results point to the diversity of alliances included within the pooled sample of all three industries. The correlations show no significant problems of multicollinearity. The dependent variable is moderately correlated with both dummy variables capturing interdependence (reciprocal and sequential).

(TABULAR DATA FOR TABLE 2 OMITTED)

Table 3 presents the results of the multinomial logistic regression analysis as estimated with LIMDEP 7.0. In this set of analyses we examined the choice between joint ventures, minority equity investments, and contractual alliances. These results provide a detailed assessment of the choices firms make when entering alliances and the factors that may be guiding this choice. Each model estimates coefficients for the choice of minority equity investments and for joint ventures against the default category of contractual alliances. We later compared the sets of coefficients to examine the choice between minority equity investments and joint ventures. Overall, the directionality and significance of the coefficients are consistent with the hypotheses presented here. Furthermore, all models included have significant explanatory power, as demonstrated by the chi-square test on the observed log likelihoods. The negative and significant coefficient for the intercept term suggests that, on average, minority equity investments and joint ventures were used less often than contractual alliances.

Model 1 in table 3 includes the control variables only, and model 2 shows results with the addition of the two measures of interdependence, reciprocal and sequential. Alliances can be arrayed by low to high interdependence as pooled, sequential, and reciprocal. They can have contracts that vary from less to more hierarchical and that range from contractual alliances to minority investments to joint ventures. To test hypothesis 1, we assessed whether alliances with higher levels of interdependence use more hierarchical contracts than those with lower levels by comparing the presence of the three alternative types of interdependence with the use of the three alternative types of governance structure. The results in model 2 support hypothesis 1, which predicted that alliances with higher interdependence (TABULAR DATA FOR TABLE 3 OMITTED) are likely to be organized with more hierarchical contracts than are those with less interdependence. This result holds true in models 3 and 4 as well. The positive coefficients for reciprocal in model 2 indicate

that both joint ventures and minority equity investments are more likely than contractual alliances when interdependence is reciprocal than when it is pooled. A t-test of the difference between the coefficients for reciprocal under joint ventures and minority equity investments further supports hypothesis 1 and shows that joint ventures, which encompass the most hierarchical controls, are more likely than minority equity investments when interdependence is reciprocal rather than pooled. The results in model 2 suggest that hierarchical contracts such as minority equity investments and joint ventures are more likely for sequentially interdependent alliances than for alliances with pooled interdependence. The positive coefficients for sequential in model 2 indicate that both joint ventures and minority equity investments are more likely than contractual alliances when interdependence is sequential than when it is pooled. A t-test of the difference between the coefficients for sequential under joint ventures and minority equity investments further supports hypothesis 1 and shows that joint ventures are more likely than minority equity investments when interdependence is sequential rather than pooled. A comparison of the coefficients of reciprocal and sequential in model 2 under joint ventures and minority equity investments further suggests that reciprocally interdependent alliances (vs. those with sequential interdependence) will be more likely to prefer joint ventures or minority equity investments over contractual alliances. Finally, a t-test to compare the coefficients of reciprocal and sequential for joint ventures and minority equity investments shows that joint ventures are more likely than minority equity investments when interdependence is reciprocal rather than sequential.

Overall, not only are the two interdependence indicators significant in predictable ways in our models, but the significant improvement in log likelihood and chi-square statistics in model 2 indicates a much better model fit. This finding clearly indicates the added value of incorporating coordination costs and interdependence into our analysis.

Results of models 3 and 4 support hypotheses 2a-2c. The positive coefficient for R&D supports hypothesis 2a and shows that alliances with a technology component are more likely than those without such a component to be organized with hierarchical governance structures, and under such circumstances, firms will prefer joint ventures and minority equity investments over contractual alliances. A t-test of the difference in coefficients of R&D for joint ventures and minority equity investments shows further support for hypothesis 2a and suggests that firms prefer joint ventures over minority equity investments when an alliance includes a technology component than if it does not.

The industry dummy variables, which indicate the appropriability regime, provide mixed support for hypothesis 2b. We expected more hierarchical controls for alliances in sectors with weaker appropriability regimes. The dummy variable for new materials, where the appropriability regime is intermediate between the three sectors, suggests that compared with biopharmaceuticals, where the appropriability regime is stronger, joint ventures are more likely than contractual alliances in new materials, which is consistent with hypothesis 2b. Contrary to our expectations, however, there is no significant difference in the use of minority equity investments and contractual alliances between new materials and biopharmaceuticals. In the automotive sector, where the appropriability regime is the weakest, consistent with our expectations, both joint ventures and minority equity investments are more likely than contractual alliances when this sector is compared with biopharmaceuticals, where the appropriability regime is strongest. The inclusion of dummy variables for each sector does not reveal whether the remaining main effects differ across the industries. To assess if the other effects observed differ systematically across industries, we estimated unrestricted models for each industry separately (results not reported here). The signs of the coefficients indicated that the postulated directionality and significance of the other main effects observed in the pooled sample did indeed hold true for each sector.

In model 4, we introduced the interaction term between R&D and the dummy variables for industry to test hypothesis 2c and examine whether the

effect of industrial sector was more salient for alliances with a technology component than those without one. That is, we tested whether the presence of a technology component in an alliance moderates the influence of the appropriability regime of the industrial sector on the extent of hierarchical controls in alliances. We expected hierarchical controls in alliances to be greatest when alliances have a technology component and are in an industry with a weak appropriability regime. As expected, the positive and significant coefficient for the interaction between automotive and R&D shows that technology-based alliances are more likely to be joint ventures and minority equity investments than to be contractual alliances in the automotive sector, where appropriability regimes are relatively weak, than they are in biopharmaceuticals, where appropriability regimes are stronger. Contrary to our expectations, the statistically insignificant coefficient for the interaction between new materials and R&D suggests that technology alliances in the new materials sector with an intermediate appropriability regime are no different in their governance structure than in the biopharmaceutical sector, where the appropriability regime is strongest.

Model 3 also includes several measures of the extent of trust developed among alliance partners. The negative coefficient for repeated ties, a measure of interorganizational trust, supports hypothesis 3 and indicates that repeated ties are less likely than first-time alliances to be organized as joint ventures or minority equity investments than as contractual alliances. A comparison of the coefficients further supports hypothesis 3 and suggests that repeated ties are less likely to be organized as joint ventures than as minority equity investments. We also assessed the role of repetition of different types of alliances and found that regardless of type of prior ties, repeated ties were less likely than first-time alliances to be joint ventures or minority equity investments (results not reported here).

We also introduced dummy variables for nationality of partner and whether alliances were multilateral or bilateral to further assess the role of trust on governance structure proposed in hypothesis 3. The negative and significant coefficient for Japan and Europe suggests that alliances involving firms from only those regions are less likely than cross-regional alliances to use joint ventures and minority equity investments than contractual alliances. This is consistent with our intuition that there is likely to be greater trust in alliances involving regionally similar partners than cross-regional partners, which in turn is reflected in the governance structure of the alliances. The insignificant coefficient for USA suggests that alliances between American partners are no different from cross-regional alliances in their governance structure and is contrary to our expectations in hypothesis 3. In addition, contrary to hypothesis 3, the positive but insignificant coefficients for multilateral across all models indicates that multilateral alliances are statistically no more likely than bilateral alliances to be joint ventures or minority equity investments than to be contractual alliances.

The first column of table 3 also reports the base model including all the control variables. Our estimations included a dummy variable for each year but one in all models. The results for these dummy variables (not reported in tables for ease of presentation) broadly confirm the growing frequency of minority investments and contractual alliances. In addition, the positive and significant coefficient for percent joint ventures and percent minority equity investments suggests that the use of these alliances positively affects firms' use of those types of alliances in that industry.

To assess the possible influence of firm-level attributes on the choice of governance structure, we conducted a separate analysis with data on all alliances formed by a subgroup of firms. Given the diversity of firms in our sample from the U.S., Europe, and Japan, it was not possible to collect financial information on all firms. For the subgroup analysis, we selected the 50 largest firms in each sector and collected information on their size, performance, liquidity, and solvency. We reestimated all our models with this sample and included variables to assess the role of partner differences by computing a ratio of the smaller to the larger

financial item to assess the effect of differences across partners on their choice of governance structure. The results (not reported here) for coordination costs and appropriation concerns after controlling for these firm attributes were consistent with those we obtained with our original sample. The fact that we still observed our hypothesized findings gives us greater confidence in our results. Among the ratios themselves, the only one that was significant was size, indicating that the greater the difference in size between the partners, the more likely they were to use joint ventures or minority equity investments than contractual alliances.

DISCUSSION

The findings in this study shed light on some of the factors that underlie how firms choose between the diversity of contracts available to formalize their alliances. Using a typology of three types of alliance structure and the magnitude and type of hierarchical controls present in each, we found that both the extent of coordination costs and appropriation concerns in an alliance can predict the use of particular governance structures. By directly modeling the influence of anticipated coordination costs on the governance structure of alliances after accounting for concerns about appropriation, the study provides a window into the multiple logics used by alliance participants in determining the governance structure used to formalize alliances.

The results provide strong support for the importance of coordination costs. An important finding was that the greater the anticipated coordination costs arising from interdependence associated with a strategic alliance at the time of its formation, the more hierarchical was the governance structure used to formalize it. Our findings confirm that reciprocally interdependent alliances are likely to have structures with greater hierarchical control than those with sequential interdependence, which in turn are likely to have more hierarchically organized alliances than those with pooled interdependence. This result suggests that the deliberations underlying the choice of alliance structure are not dominated by concerns of appropriation alone, as previously suggested, and that considerations associated with managing coordination costs resulting from the interdependence of tasks across partners are also salient. Such considerations have yet to be examined for interorganizational relationships and, as our results suggest, they merit serious consideration. Given that coordination costs are a key element in the choice of alliances, they may influence the fundamental choice of firm boundaries as well and could be an exciting topic for future research.

We also examined the role of appropriation concerns and behavioral uncertainty, highlighted in previous research, in guiding the choice of alliance structure. The results provide mixed support for the appropriation hypothesis. Consistent with previous work (Pisano, 1989), alliances involving a technology component were likely to use more hierarchical structures than those that did not involve one. Contrary to our expectations, however, the differences across industrial sectors, which also reflect varying appropriability regimes, do not entirely explain the choice of governance structure. This is problematic in the comparison across new materials and biopharmaceuticals, and the results show that while joint ventures are more likely than contractual alliances in the former than in the latter, there is no significant difference in the use of minority equity investments and contractual alliances. The interpretation of this null result is not unambiguous, as this result could be influenced by additional unmeasured factors, such as localized institutional norms, historical imprinting of behavior by industry participants, and the intensity, diversity, and niche-based dynamics of competition in those industries.

The results for appropriation concerns were also confirmed by looking at the simultaneous influence of the sector in which the alliance occurred and the presence of a technology component in the alliance. The results suggest that the presence of a technology component in alliances enhances the influence of the appropriability regime of the industry on the governance structure used. In particular, the combination of a technology component and an alliance in a sector with a weak appropriability regime

increases the likelihood of firms choosing hierarchical governance structures.

We used several measures to assess the influence of interfirm trust as another factor that can affect the choice of governance structure of alliances because it can address not only appropriation concerns but also potential concerns about coordination costs. Results for the first indicator of trust, the presence of repeated ties, are consistent with our expectations: repeated ties diminish the use of hierarchical controls in alliances. This result holds true even after we separated out the history of alliances by specific types of alliance. Thus, a prior history between the firms matters, regardless of the type of prior alliance the firms entered.

The results for the regional origin of partners, which we also proposed would capture trust, reveal some interesting trends. The comparison between local versus cross-region alliances was broadly consistent with our expectations of greater trust in local than in cross-regional alliances, but breaking down local alliances by region suggests some provocative issues not fully explored here. While the results for European alliances are consistent with our predictions, contrary to our expectations, Japanese domestic alliances are no different from cross-regional alliances in their use of minority equity investments or contractual alliances, though they do differ in their use of joint ventures or contractual alliances. Even more conspicuous is the absence of significant differences in the governance structure of alliances between American partners and cross-regional alliances. While these results suggest some systematic differences in the level of trust between local and cross-regional alliances that is reflected in the governance structure of alliances, several alternative interpretations are possible for the results for each region. These differences may be the result of appropriation concerns resulting from greater difficulties in specifying and enforcing property rights and monitoring problems in cross-regional alliances than in local alliances, or they may be due to the greater coordination challenges and coordination costs in cross-regional alliances than in local alliances. Local alliances in each region may also be influenced by localized institutional contexts deeply embedded in normative practices and authority structures (Hamilton and Biggart, 1988). Or perhaps there are historical and legal circumstances that mandate or encourage the use of particular governance structures for alliances. These results, along with those for sectoral differences, reveal some interesting patterns that remain to be explored in future research.

Overall, the results for the effect of prior trust confirm that it is important to consider alliances between firms as occurring within a rich social context in which firms are embedded (Gulati, 1998). This context channels valuable information between firms and can thus influence not only the formation of new alliances and the choice of partners (Gulati, 1995b) but also the specific structures used to formalize alliances. While this study has considered the implications of relational embeddedness resulting from the direct ties in which firms are placed, it would also be instructive to explore the role of structural embeddedness resulting from the positions firms occupy in the overall network on the governance structure of alliances (Granovetter, 1992). This could encompass not only an examination of firm location in the interorganizational network but also consideration of the extent to which the network itself has become differentiated (Gulati and Gargiulo, 1999).

Another facet not considered is the influence of the social structure of dependence between partners on the governance structure of alliances. A prominent line of research has outlined the social structure of resource interdependence as an important determinant of tie formation between firms (Pfeffer and Nowak, 1976; Burt, 1982; Oliver, 1990; Gulati, 1995b; Chung, Singh, and Lee, 1998; Dyer and Singh, 1998; Gulati and Gargiulo, 1999). This suggests that resource considerations and a quest for complementary skills are powerful propellants for the formation of new ties between firms, including joint ventures. While this research has pointed to the catalysts for new alliances, it has neglected to examine the factors that may influence the choice among an array of contracts possible for an

alliance. Partners in alliances may indeed seek to mitigate concerns of dependence and power arising from resource asymmetries by using particular governance structures (Baker, 1990; Aghion and Tirole, 1994).

The results of the control variables suggest that both the time trend and the frequency with which other industry participants used particular structures also influence the choice of governance structure in alliances. The positive influence of frequency of prior alliances by industry participants on the choice of structure in an alliance reflects the likely occurrence of imitation or of industry imperatives not captured by other variables included in our study (Westphal, Gulati, and Shortell, 1997). This effect disappeared, however, once we introduced the hypothesized variables in our framework. The findings in this study help us understand some of the reasons why the composition of structures used may have shifted over time from more to less hierarchical. In particular, the insignificance of most of the dummy variables capturing time, once we introduced the measures for interdependence, suggest that the time trend may have been capturing the changing patterns in underlying interdependence in alliances. Thus, a likely explanation for the observed time trend may be that firms are entering alliances with lower levels of interdependence.

This study focused on the decision firms make at the outset of an alliance about its governance structure. Our discussion with legal experts who have been involved in the creation of many such alliances confirmed that firms entering alliances do indeed face such a decision once they have agreed on the logic of value creation and the scope of activities to be included within the partnership. There are numerous other questions that arise, however, once we consider the dynamic evolution of the alliance. It would be useful to examine how the governance structure of alliances changes as the expectations and goals of partners in the alliance evolve (Gulati, Khanna, and Nohria, 1994; Doz, 1996; Khanna, Gulati, and Nohria, 1998), as well as the extent of asset-specific investments undertaken by the partners and how these may change over time.

Our results also have implications for fundamental questions about the alternative bases for hierarchical controls in alliances and for the design of organizations. We have suggested that hierarchical controls arise in alliances when participants anticipate either coordination costs or appropriation concerns. The implications of hierarchical controls on the ultimate success or failure of alliances remains an interesting but separate question. Addressing this would entail not only a precise specification of conditions under which hierarchical controls may be beneficial, it would also involve a clear definition of performance for alliances, which itself can be problematic (Gulati, Kumar, and Zajac, 1998). Furthermore, it could be useful to separate the enabling and coercive elements within hierarchical controls that could promote or inhibit the ultimate success of alliances (Adler and Borys, 1996).

Powell (1990) and others have suggested that hybrid forms such as alliances may not necessarily be a halfway house between the twin pillars of market and hierarchy but, instead, could be considered distinctive forms of governance in their own right. This study focuses exclusively on alliances and does not examine the entire spectrum of exchanges from market to hierarchy. While it utilizes hierarchical controls as a key dimension to distinguish among alliances, this does not imply that alliances as a whole are situated between markets and hierarchies on a single scale. The place of alliances in the realm of organizational forms is an important question and must remain the object of future theoretical and empirical inquiry.

While this study focused on the origin of hierarchical controls in alliances, its findings can provoke an examination of the importance of coordination costs for the question of why firms exist. Recent efforts to question the singular importance of opportunism-based transaction costs economics have introduced the role of knowledge and its application to business activities as a basis for why firms exist (Conner and Prahalad, 1996). This work could easily be expanded to examine the role of coordination costs as an important basis for why firms exist and their influence on the scale and scope of firms.

Together, our findings lend credence to our typology of alliance governance structure, in which we arrayed alliances from less to more

hierarchical. The systematic evidence that the choice between the three alternative alliance structures is influenced significantly and in theoretically predictable ways by both interdependence and appropriation concerns enhances our claim that these categories indicate distinctive types of alliances, each of which incorporates specific levels of hierarchical controls. The distinction we offer is not only theoretically relevant, it is also parsimonious and easy to operationalize. In prior research, numerous schemes to classify alliances have been offered, but when it comes time to translate them into operational definitions with which to classify data, they fall prey to arbitrary and overlapping categorizations. In this paper, we present a distinction that is both robust and theoretically relevant and that we hope will help to guide other scholars. Nonetheless, numerous directions for extending this typology are also possible. It would be useful, for instance, to examine the extent to which there may be differences in the contracts within each of these categories. The five facets of hierarchical controls in alliances that we introduced can provide an informative set of dimensions along which this variation could be assessed. This would entail looking at the actual covenants of the contracts and observing the extent to which each of the five elements may be present in them (Stinchcombe, 1985).

In this study we have considered two perspectives that suggest differing circumstances that influence the extent of hierarchical controls in alliances: an economic approach, which highlights appropriation concerns, and an organizational approach, which emphasizes coordination costs. Overall, the results have several ramifications. First, they suggest that the formation of exchange relations between firms is not entirely dominated by appropriation concerns. Coordination costs, arising from decomposing tasks between partners and the requisite ongoing coordination and management of tasks across partners, are also important and play at least an equally significant role. Underlying this study is the fundamental question about the relative importance of alternative bases for hierarchical controls in alliances. Both perspectives discussed point to the salience of bounded rationality and concomitant uncertainty as important considerations for the emergence of hierarchical controls. But each specifies the role of different facets of uncertainty experienced by alliance participants at the time of forming an alliance as important in their decision to introduce hierarchical controls in the formal structure. While one perspective highlights the salience of anticipated appropriation concerns resulting from contracting hazards and manifest behavioral uncertainty, the other points to uncertainty arising from the anticipation of the extent of ongoing task coordination and the complexity of decomposing the division of tasks. We do not claim that our perspective, highlighting the role of coordination costs, constitutes the exclusive explanation for hierarchical controls in alliances; hence, we investigate the simultaneous influence of both sets of factors. There can be overlaps in the occurrence of coordination costs and appropriation concerns. As a result, it can be difficult to distinguish between the influence of these two empirically. While it may be difficult to isolate the occurrence of each it its pure form in the absence of the other, as was true with our hypothetical example discussed earlier, we empirically demonstrate the distinct role of coordination costs in guiding the choice of governance structure in alliances.

Second, the results in this study highlight the fundamental issue of the origin of hierarchical controls in alliances: whether they arise from a concern with coordination costs and interdependence across partners or result from anticipated appropriation concerns. These results show that both sets of factors are important considerations for alliances. Firms choose governance structures both to manage anticipatecosts and to address appropriation concerns. This finding is consistent with our belief that hierarchical controls are more than mechanisms to control opportunism and provide incentive alignment across partners; they also provide an organizational context that determines the rules of the game and creates an administrative architecture within which the partnership proceeds. This architecture provides alliance partners with the ability to coordinate tasks and responsibilities between themselves in a way that meets their own

needs for value creation and allays their particular concerns about the alliance. Our findings thus begin to explain the variety of alliances that firms form with their partners and the different structures they build together.

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1 This concept is distinct from transaction cost economists' coordination costs, which refer to the agency costs resulting from the growth of organizations, which provide "decreasing returns to the entrepreneur function" (Coase, 1937: 340). Such costs, also referred to as organization (Masten, Meehan, and Snyder, 1991) or management costs (Demsetz, 1988), are the costs of organizing resources within firm boundaries (Alston and Gillespie, 1989) and are not easily applicable to exchange relationships such as alliances. Our concept is akin to Williamson's (1991) in his discussions of different forms of adaptation, although he focuses primarily on the requisite coordination for adapting activities to exogenous disturbances and on appropriation concerns and the incentive alignment requirements rather than the administrative challenges of coordination itself.

2 Davis, Kahn, and Zald (1990) connected governance structure and interdependence in the context of interactions between nation states and across organizations using research on interorganizational ties as an analogue to illuminate how nation states behave. Gerlach and Palmer (1981) looked at changing levels of sociopolitical interdependence in societal evolution and explored the antecedents of interdependence as well as its consequences for the emergence of new governance institutions.

3 Teece (1992: 8) acknowledged that an innovator's quest for complementary assets can lead to varying degrees of interdependence and co-specialization, but he focused on the relative degree of mutual dependence resulting from specialization of assets for the alliance; the greater the mutual dependence, the larger the co-specialization. In contrast, our usage of interdependence focuses on the partners' anticipation of the extent of complexity in decomposing tasks and the degree to which it will entail ongoing mutual adjustment and adaptation to accomplish joint tasks, which is akin to Teece's discussion of "coupling."

4 Strictly speaking, behavioral uncertainty is considered to be exogenous and ubiquitous, and it is the concomitant occurrence of contracting hazards such as asset-specific investments and appropriability concerns that aggravate the challenges of writing contracts to cope with sequential adaptation and lead to appropriation or moral hazard concerns (Williamson, 1991). While behavioral uncertainty is treated as a given, it is an important assumption that creates a necessary but perhaps not sufficient condition for moral hazards.

5 In applying the multinomial logistic regression model, we tested for the independence of irrelevant alternatives by applying the Hausman and McFadden (1984) test. Results suggest that the null hypothesis cannot be rejected and that all three choices are indeed independent of one another.

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Extricating A Division From Its Parent
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TEXT:
]Thomas E. Doran, Susan E. Goldy, Glenn A. Gundersen, and Lois Kimbol
]The sale of an unincorporated unit that shared technology, employees, and accounting with its parent requires extra planning.
]@Text:]Bicycles Inc., which manufactures bicycles, has agreed to sell its wheel-making division to Wheels Inc., a smaller company that already makes wheels for bicycles and other vehicles. Bicycles historically manufactured all of its components but has decided to outsource several parts operations. This transaction is a key part of that program and as part of the deal structure, Wheels obtained a long-term agreement to supply Bicycles with its wheel requirements. After the closing, Bicycles will be the largest customer of the divested business which in turn will greatly expand the size of Wheels.
]Because Wheels is buying an unincorporated division and the deal is contingent on the supply contracts, a number of special issues beyond generic m&a considerations must be tackled. (The authors are advising Wheels). Accounting, billing and collections, sales, marketing, and purchasing for the division are centralized at Bicycles' headquarters. Separate financial data are not available and there is no separate accounting for the division.
]All of the division's employees will be hired by Wheels and key management will be retained. Certain technology and intellectual property will be transferred. Some is used exclusively in the wheels business but other assets are used not only in the wheels business but in parts of the business that Bicycles is keeping. An important environmental consideration is that Bicycles will continue to own the wheel-making factory and lease it to Wheels.
]Buying Stock Versus Buying Assets
]Goldy: Buying an unincorporated division generally means buying assets, but the choice may not be easy. If the wheels business were a subsidiary, Wheels could buy the stock of that subsidiary and acquire ownership of all of its assets. However, when buying stock, the buyer generally also takes all of the liabilities.
]In addition, the buyer should determine how long ago the business was set up as a subsidiary and whether Bicycles dropped the assets down into the subsidiary in anticipation of selling them. Bicycles may have used an old shell company, and the buyer must be careful that it doesn't get stuck with hidden liabilities sitting in the shell. At the same time, the buyer may find that many of the assets needed to run the business were never put in the subsidiary but remain with the parent. Intellectual property is an example. Or Bicycles may want to retain real property to avoid transfer taxes.
]Doran: There is little latitude in choosing between a sale of stock and a sale of assets from a tax viewpoint because this is an unincorporated division.
]The most obvious advantage to the buyer of assets is that it obtains a step-up in basis for the assets. The degree of that advantage depends on the amount of appreciation in the assets. The flip side of obtaining the step-up is that the seller pays taxes on the full appreciation as well. In some circumstances the sale of assets will produce a double tax, although there are certain exceptions. The three key exceptions are when the divested business is part of a subsidiary in which a corporate parent has

at least 80% ownership, the seller is an S corporation, and the seller has certain tax attributes that allow it to shelter some or all of the gain on the sale.
]There are some potential disadvantages to buying assets that relate to local taxes, such as the realty transfer tax or sales and use taxes, and in some jurisdictions, a sale of stock will allow a seller to escape them. In a non-tax context, the sale of stock may permit a transfer of real estate leases without obtaining a landlord's consent, which often is required in an asset sale. I was involved in a situation in which the requirement prevented a deal from occurring because a landlord controlled a number of sites that had to be transferred.
]Sharing or Splitting Assets
]Goldy: It is very hard to tell in many circumstances exactly what is being purchased when a division is sold. Often the assets are integrated into the seller's other businesses. The buyer may find that critical needs like product tooling or production lines are so integrated into the seller's business that it is difficult to sort out what is used exclusively in the wheels business and what may become a shared asset between buyer and seller.
]Thorough due diligence is essential. Operations people who are knowledgeable in wheel manufacturing should look at all of the equipment and machinery to figure out exactly what will be needed to make the product after the deal closing. This process also will sort out what will become shared assets following the closing. We have advised Wheels that it needs at least a generic description of the assets it is purchasing when its people negotiate the agreement but, preferably, the list should be as detailed as possible. If a future question arises about who owns what asset, and it is a material asset, the buyer should have a schedule that says exactly what was bought and sold.
]Sellers may find a detailed listing burdensome and time-consuming and tell the buyer it isn't necessary. The buyer should beware because the seller may be trying to limit the scope of the assets being transferred. No buyer should take the risk that it missed something critical to running the business.
]A seller also may want to refer only to assets on a corporate or divisional balance sheet without drawing up a specific schedule of what is to be transferred. That gets to be very tricky. When there are no separate financial statements, it is very hard to tell which assets belong to the division being sold and which are actually part of the larger company. Relying strictly on the balance sheet also leaves the buyer vulnerable to a situation in which GAAP (Generally Accepted Accounting Principles) does not require certain assets to be reflected yet they may be the very assets required by the business. A primary example is intellectual property.
]If assets such as product tooling are shared, the two sides must determine who is going to own them and whether the buyer will have the right to use them if they stay with the seller. They may want to look at who is using the tooling most. If Bicycles is going to be using 75% of the tooling and Wheels 25%, the chances are that Bicycles will want to continue ownership. But Wheels must make provisions so it is able to use the 25% of the tooling it will require. Wheels may have to pay for that usage, perhaps as a part of the purchase price, but it at least is assured there is a mechanism in place so it can operate the business.
]Intellectual property may be another shared asset. Say Bicycles has used the brand name Speedsters for its wheels, its other accessories, and its complete bicycles. Can Wheels take the name Speedsters for its wheel products and leave Bicycles with the name for everything else?
]Gundersen: This is a common situation. The Speedsters name has a lot of value in the marketplace and helps to sell the product. It is natural that the buyer would want to continue using it after closing.
]But the buyer can't purchase the brand name if the seller will continue to use it on related products. From a legal standpoint, a trademark isn't ordinary property but something that symbolizes a single source of product. There is only one Coke, one Kodak, and one Mercedes. A trademark can have only one owner. You can't split the baby. Everybody else using the name is a licensee. So, Wheels will have to be a licensee. It will not be able to

claim outright ownership of Speedsters.
]This is common but not always obvious. When General Electric sold its TV manufacturing business to Thomson of France, the buyer presumably received a license to sell TV sets under the GE and RCA names. GE is still making other appliances under the GE and RCA names. Consumers can't tell the difference, and in fact are intended to perceive that a trademark means a single source of product.
]The problem for Wheels is that this means it is going to be tethered to Bicycles after the closing as a licensee. The continuing relationship manifests itself in several ways. For this to be a valid trademark license, the seller must have some control over the quality of the products with its brand name, and that means a quality control standard must be negotiated as part of the deal. It may be very vague, simply saying that the quality of the wheels will be equal to or better than the wheels now being sold. But sometimes the seller will demand the right to do quality control inspections or get quality control reports. If there is no provision for quality control, the trademark is potentially unenforceable.
]From a marketing and public relations standpoint, each company selling under the Speedsters named is affected by the other's reputation. If one suffers a public relations setback, such as a product recall, indictment of an executive, or a Chapter 11 filing, it will reflect on the other. The question for both buyer and seller is whether each feels comfortable with having its image and reputation affected by the other side. Most buyers are willing to take the risk because it is important to have a recognized brand name.]
]As a result, the parties must determine how long they will have this relationship. Is the trademark going to be used for a short transitional period during which the buyer purchases existing inventory bearing the Speedsters brand and phases in another brand? Or is it going to be a longer transition? Wheels may need a few years to develop and get public recognition for a new brand name. Or it could be an indefinite relationship like GE and Thomson.
]Each of these arrangements has problems. If the buyer phases out the mark once a new brand is established and the right to use Speedsters goes back to the seller, can Wheels sell wheels under the Speedsters brand or license somebody else to do it? The buyer won't be happy about it, but the seller will take the position that trademarks are a "use it or lose it" asset - don't use it and it ceases to be a trademark. So, the seller may say that it must use the trademark for legal purposes. The buyer may wind up competing with somebody else selling the Speedsters brand of wheels.
]If it is a long-term relationship, the buyer has to be assured that the license can't be terminated prematurely. This could lead to problems if the seller goes bankrupt or if the seller claims there are quality control problems in producing the wheels. The buyer should try to determine whether there are other brands in the buyer's portfolio that it can acquire outright. But if a trademark is going to be shared, the two sides will face licensing issues that need to be worked out during negotiations.
]Goldy: Certain employees may also be shared assets. The employees operating the wheel-making division also may be involved in other parts of Bicycles' operations. The buyer must make sure it will have all of the employees it needs to operate the business.
]Spend time on contracts with customers and vendors. Which contracts will the buyer be assuming and which contracts will it be leaving behind? And which contracts, like the leases, require the consent of a third party to be transferred?
]Kimbol: The courts are saying that the old rule allowing the buyer in an asset transaction to choose the liabilities it will assume doesn't hold anymore. In fact, more courts in more jurisdictions are saying that even in an asset transaction, the buyer continuing the operation will wind up with at least the liabilities of the specific line of business being bought. So, if our client is continuing the manufacture of wheels, it may acquire an environmental liability resulting from wheel manufacturing, whether it is at the current facility or a facility that the seller operated 25 years ago and closed long before a divestiture was considered.
]These decisions are changing fairly rapidly. One issue is whether the

buyer knew about the liabilities in advance. In the environmental area, no one can assume that what is written on a sheet of paper or what is in a contract is going to bind anyone except the two parties because regulators and courts may have different ideas.

]Extracting a Valuation

]Goldy: One of the toughest things to determine in the purchase of a division is exactly how to value the part of the company being purchased. There may not be separate financial statements or separate financial data. How does a buyer figure out what net operating income ultimately will be?

]If the seller is a large company with audited financial statements, the thresholds for materiality under GAAP may be so high that a buyer may never find out about the problems and other issues in the division because the unit would not reach the threshold for being broken out. So, the buyer must ask for an audited financial statement for at least the preceding year. The seller will probably balk but the buyer will get a much better sense of what it is actually acquiring. Be aware that internal records for the division probably are not kept in accordance with GAAP. The buyer looking at the deal from a GAAP perspective should realize that the financial data may not coincide with the standards that it has in mind. If Wheels is planning to go public a year or two after the sale, it definitely will need audited financial statements, probably for the three years preceding the deal.

]Another difficulty in assessing the financial statements is how the shared expenses were dealt with and how overhead costs were allocated. It is easy for the large-company seller to allocate whatever it wants to the division in terms of the costs of producing the product. So, the buyer needs an accounting firm or other consultant to do in-depth due diligence on the allocations and calculate the true net operating income of the division after it changes hands. Lenders certainly will be concerned about the allocations because they want to know about the real performance of the business. In a recent transaction, a buyer/client took no less than 10 months to go through the financial data at a large manufacturing company that was selling a division so it could figure out the actual costs under the seller's allocations.

]The audit also should highlight intercompany relationships and charges and credits because they affect operating results. It may turn out that the target division is not nearly as profitable as originally thought - or that it actually is more profitable.

]Doran: Tax issues impel structuring this transaction as a direct sale of assets. The seller is relatively indifferent as to whether the proceeds are classified as ordinary income or capital gains because the corporate tax rate has been the same for both for several years. The 1993 federal law that threw all intangibles, including goodwill, into essentially a single basket and permitted them to be amortized for tax purposes over 15 years also figures in the decision. Previously, the buyer might have preferred to allocate a greater portion of the purchase price for tax purposes to a capital gains-friendly item like goodwill while the seller would try to allocate as much as possible to hard assets that were unarguably depreciable.

]Some techniques are available to make the deal more tax-efficient. The seller can defer some of the tax through an installment sale. It is possible to achieve installment sale treatment in an asset deal if the seller is willing to take back paper from the buyer rather than receive the entire price in cash. However, certain types of assets are ineligible for installment sale treatment, such as inventories and assets being sold at a loss. The drawback is that installment sale treatment requires the seller to pay interest each year on transactions in excess of $5 million because it obtained the benefit of tax deferral. And if the seller wants to use the buyer's paper as security for borrowing money, that will normally accelerate an installment obligation. So, the benefits of installment sale reporting are much less attractive than they were a few years ago.

]However, there is a technique for allocating the price among various assets to maximize the installment sale benefit. For instance, if the seller is receiving 40% in cash at closing and deferring the other 60%, it does not have to allocate the 40% cash portion to every asset being sold.

The technique is to allocate more of the cash to assets that are ineligible for installment sale reporting and thus achieve a greater deferral through the non-pro rata allocation of the paper to the other assets.
]Another deferral technique that is increasing in use is the like-kind exchange. Like-kind exchanges used to be pretty fundamental. There were two parties and one would swap some assets for similarly valued assets of the other party. The key was finding someone who wanted to swap with you. With the onset of three-party exchanges, there is a real opportunity to utilize like-kind exchanges for tax planning, particularly if a divested business has significant real estate. The gain can be deferred, perhaps indefinitely, because the parties can keep on exchanging. Like-kind exchange treatment also is available for other types of assets, but it is more difficult to qualify them than real estate.
]The buyer may not want to get involved in something too complex. The tip-off that the seller plans to do a like-kind exchange to shelter gains on the sale is a pretty innocuous clause in the sale agreement called the "exchange cooperation" clause. It doesn't obligate the buyer to do much of anything and only authorizes the seller to assign its rights, not its obligations, and work through a third-party intermediary. But if the buyer sees the tax savings that the seller will achieve, it may want money for participating in the plan even though the cooperation needed from the buyer is minimal. Anyone representing a seller probably should take a pretty hard line that it is not negotiable.
]Strategic Partnership
]Goldy: Besides having utility as a tax-planning tool, the seller note can be useful in financing the deal. In a situation like the Bicycles divestiture, which involves a longer-term relationship including supply agreements, it is nice to owe the seller money. It gives the seller additional incentive to cooperate with the new owner who gains some leverage in future dealings. On the downside, the seller may demand fairly detailed financial information about the divested operations going forward and the buyer must think hard about how much it wants to share as an independent business.
]Supply agreements can help finance the transaction. Bicycles has agreed to an arrangement under which it expects to purchase 100% of its wheel requirements from Wheels for perhaps as long as 10 years. The advantage to Wheels is that it can lock in prices over a long period, gain an incentive to reduce its costs, and be able to anticipate its cash flows. The sales to Bicycles will constitute 50% of Wheels' total business, so the impact on cash flows is substantial.
]Having favorable pricing up front also reduces Wheels' needs for external financing because it knows what incoming payments will be. However, Wheels should be sure to get quick-payment terms so the seller can't drag out the payments on 50% of the business and force Wheels to borrow funds for working capital.
]Perhaps the biggest question the buyer needs to answer is how it will run the business the day after closing. That turns on management. Do you want the management people at Wheels to stay with the business? If you want to keep them, should you sign employment agreements with them? Should they have an equity interest in the business? How far down in management do you want to go in providing equity? The buyer will want to determine what incentives to provide for the management, and equity certainly is an incentive if the acquired people know they have an economic stake and can share in the upside.
]If equity is to be granted, the buyer must determine if the stock will be vested at closing or vested over a period of time. We quite frequently see vesting over five years so that senior managers will have an economic interest as long as they stay with the company. If they leave, they run the risk of losing whatever equity has been given them.
]Doran: A key element in structuring a compensation package is to understand what the managers already had and whether the buyer is going to honor those arrangements. If they have existing options that are vested, will either the buyer or seller terminate the options and pay them some type of cancellation reimbursement? Will the buyer roll the options over into its business? The buyer of a division finds it pretty hard to track

performance based on what the managers had before.
]How far down the work force will the buyer go to provide incentives? It is a tough question when the division has no history as a stand-alone business. There is always a lot of personal trauma involved in a change, so the buyer may well go further down the employee ranks than it likes to provide equity as incentives.
]The Critical Transition
]Goldy: The whole matter of making this a stand-alone company and operating it on a day-to-day basis is critical. Transition or support agreements can help. Due diligence should help the buyer figure out which functions it can deal with from its own operations. Since Wheels has been operating for some period of time, it should enjoy certain synergies, and be able to pick up some of the functions formerly provided by the seller in other parts of its business.
]However, if the deal is increasing business by 50%, Wheels may have a hard time handling an enlarged operation with existing functions and systems. Under a transition agreement the seller, for a fee, may provide all services the buyer needs. Strong due diligence of shared assets and services is critical in striking the agreement. In a recent transaction, one of our clients found 5,000 line items that had to be dealt with through transition or support services agreements.
]Who will provide the services is important in replicating the historical operating results of the business so that the buyer can anticipate its performance over at least a certain period of time after closing. Transition agreements give the buyer time to figure out which functions it will assume on its own and which will be contracted to third parties. A warning is that the seller's employees may lose interest fairly quickly in the functions they retain because they are no longer part of the divested business. The usual transition agreement runs from six to 12 months.
]Some other systems, such as MIS and telecommunications, usually are highly integrated into the seller's business and need special consideration. The buyer should be assured that if the telephone rings on the day after closing that it is going to ring in the right place, that there is a correct phone number, and that somebody is going to be able to answer the phone and conduct business.
]Some transition services, especially software, may require licensing or consents from third parties. Technology needed to operate the business is crucial.
]Gundersen: Licenses are a critical focus of due diligence. The basic rule is that if you are licensed to use intellectual property (e.g., market with somebody else's brand name, utilize somebody else's technology, or make use of software) the licenses aren't transferable unless the terms explicitly allow transfer. One of the big headaches for the buyer is to go through that list and make sure it has the right to continue using licensed assets the day after the closing. Otherwise it would negotiate for those rights.
]Technology has some similarities to trademarks, although trademarks are easy to identify and define. Technology is a lot harder. If the technology is patented, obtaining it is relatively easy, but most of the needed technology in the Bicycle-Wheels transaction is unpatented know-how, and that may be a tougher issue.
]For example, the real value in this deal is the ability to run the wheel factory efficiently and compete with off-shore competitors. Wheels may be getting notebooks, specifications, and other materials, but what really makes the difference is the knowledge that is in people's heads. It is very important to make sure that the buyer has those people or it will lose the benefit of that technology.
]Bicycles has installed high-tech manufacturing machinery throughout its organization but Wheels is only getting one plant. So, we are back to a license situation. The buyer should ask the seller for an outright transfer of everything specifically needed to run the business - including a perpetual license to use the technology.
]That raises questions. Is the buyer going to be restricted to using the technology only in the making of wheels? Can it later expand the technology to other products? If the buyer is later acquired by a competitor, can it transfer that know-how to a facility where the competitor is making bikes?

The buyer is probably going to want to preclude use of the technology on all other components such as handle bars and brakes and limit it to making wheels.
]Future improvements represent another issue. Wheels essentially is taking a snapshot of the technology on the closing date. Does it want access to future improvements from the seller? Will the seller be willing to share the improvements? It is nice to have an agreement for sharing improvements but it is going to be difficult to enforce because a lot of the enhancements will be inside four factory walls and out of the other party's sight.
]Don't forget geography. Intellectual property rights are territorial. A patent only exists in the country where it is issued. If there is no patent in another country, that technology is free for anybody to use. Trademarks also are territorial. A famous example is the Bayer trademark for aspirin. From World War I until 1995, the Bayer brand was owned by two companies - Bayer AG in Europe and Sterling Drug in the U.S. - until Bayer AG reacquired full rights to the name. We may discover that Speedsters is protected in the U.S. but that somebody else owns the mark overseas. If we want to expand overseas we may have to use another brand name or negotiate to acquire the mark from the foreign holder. The whole issue of who maintains and enforces intellectual property in all countries is going to come up. Does the seller or the buyer handle it? Who calls the shots? The seller, for example, may draw a line, transferring rights only in the U.S. and Canada but retaining them everywhere else.
]Kimbol: Transfer also can be a problem in environmental issues. Wheels is leasing the facility that the seller has operated but government-granted permits allowing operation of systems that control air or water emissions or allow the disposal of hazardous or solid wastes don't automatically transfer to an asset purchaser, although such permit transfers are fairly automatic in stock transactions. In an asset deal, there is a new operator of these systems and the permits must be formally transferred.
]This issue gets lost in many deals, partly because Phase I and Phase II environmental audits don't look at the permits that a facility has - or at compliance at all - unless specifically requested. A buyer can wake up the first morning that it owns a plant and discover that the permits are in somebody else's name and, technically, the new owner can't lawfully operate the facility. It is not hard to find these permits, but a buyer should allow a lead time of 30, 60, or even 90 days to get a permit transferred.
]Since there often isn't much time between signing and closing, and the seller usually doesn't want the government involved in the transaction until there is a done deal, during an interim time there may be the possibility of reaching an agreement under which the buyer operates the plant on behalf of the seller as sort of a subcontractor. The government generally will honor the arrangement unless something goes wrong. However, if the permits and the plant remain the property of the seller, the buyer is at the mercy of the property owner in renewing the permits and making sure that the reports are filed with the right agency. We recommend that permits be transferred as quickly as possible to the control of the buyer, even in lease situations. As long as the seller owns the facility it may have to sign on the dotted line every few years to renew the permits so its cooperation should be specified as part of the deal.
]Sharing plants or facilities with other companies is very complicated. In the last two transactions that we did involving shared sewage treatment plants, industrial waste water treatment plants, and air control emission plants, environmental services agreements ran to about 50 single-spaced pages each. It is patently absurd but that is the level of detail that was required. If at all possible, the buyer should want to operate its own facility. Only if the buyer plans to move in a few years does it makes sense to use shared facilities. Since there still will only be one permit holder, the buyer needs to know the stakes in sharing. Who has the most waste water going into the facility? Who is going to be harmed the most if the government stops the operation? That entity that ought to have the permits.
]Having different permits for different pieces of equipment in or emissions from a facility is probably the better way to go. Permit transfers today

are more dependent than ever on the compliance history of the party to whom the permit is being transferred. If Wheels has had environmental compliance problems somewhere else, it might be very difficult to secure the transfer.
]Goldy: From a pure business perspective, the buyer who receives a long-term supply agreement is going to be relying on the seller. This issue falls on several levels. The decision to grant the contract is being made at a high executive level at the selling company and the operations people whose bonuses and compensation may depend on cost savings and cost cutting may not be happy with the fact that their bosses have agreed to a fixed-price contract over a long period. There may be resistance going forward to buying the wheels. Wheels must think about other customers that it can sell to as well as how much flexibility it has if Bicycles comes back a year or two down the road and says it will reduce the prices by 20%.
]Technology changes may figure in future relationships. Even though this is a requirements contract, it may turn out that the seller no longer has any requirements for the Wheels output if the products don't comply with new technology. This is another reason to think about alternative marketing and distribution if Bicycles backs out.
]The buyer also wants to make sure that Bicycles doesn't change its mind a week, a month, or a year later and start competing with Wheels. So, a non-compete agreement is essential. Non-competes are enforceable if they are reasonable in terms of the length of time that the seller is restricted, the geographic limitations on sales, and related factors. The buyer must have a very clear definition of what the business is and identify its overall objectives for the future. That will help the buyer limit the seller's ability to enter a business, even on a worldwide basis, that might compete with the acquired operation.
]Beyond the Contract
]Goldy: When drafting representations and warranties in the sale contract for this type of deal, a caveat is checking the creditworthiness of the seller in case compensation will be sought under the indemnity provisions. We have to assume that Bicycles is a substantial company and will remain in existence. But a buyer certainly wants to assess how long the seller is going to be around, and whether in fact it has a reputation for paying on time and honoring its obligations. The buyer also needs to know if Bicycles has a reputation for being litigious - which suggests a battle every time Wheels wants to make an indemnification claim.
]Doran: It is very essential that Wheels recognize that the transaction, which involves a continuing supply relationship, is very different than merely purchasing a business. It is much more akin to entering into a long-term partnership, and that brings up several special issues.
]Normal due diligence will deal with financial viability and similar matters. But a buyer like Wheels has to a

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COMPANY NAMES (DIALOG GENERATED): Bayer AG ; Bicycles Inc ; Buying Stock Versus Buying Assets ; General Electric ; Kodak ; RCA ; Splitting Assets ; Sterling Drug ; Strategic Partnership ; Thomson ; Wheels Inc
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The architecture of cooperation: managing coordination costs and appropriation concerns in strategic alliances.
Gulati, Ranjay; Singh, Harbir
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An alliance is commonly defined as any voluntarily initiated cooperative agreement between firms that involves exchange , sharing, or co-development, and it can include contributions by partners of capital, technology, or...

...structure, have suggested similar moral hazard concerns as a reason why firms may transform pure exchange relations into power relations (Pfeffer and Nowak, 1976).

While appropriation concerns originating from contracting obstacles ...arise because of the difficulty of writing complete contracts. This difficulty is exacerbated when technology exchange or sharing is involved and when the limits of the technology being transacted upon are...
...appropriation concerns of firms entering an alliance by affecting the difficulties associated with specifying property rights and monitoring and enforcing the agreement .

Technology component in alliance. A primary basis from which prior researchers have examined concerns of...

...which makes it difficult for parties to assess accurately the value of the commodity being exchanged without complete information from the partner, who may not want to reveal such information because...

...can further aggravate concerns about appropriation of rents resulting from poor monitoring possibilities in such exchanges (Barzel, 1982; Hennart, 1988; Balakrishnan and Koza, 1993). The difficulty of transferring tacit research and...

...but they are likely to be salient only in a subset that may involve bilateral exchange or joint development. The primary concern of participants entering alliances with any technology component is...or absence of equity, with alliances involving equity considered to be more hierarchical than nonequity exchanges (Hennart, 1988; Pisano, Russo, and Teece, 1988; Pisano, 1989; Teece, 1992). Equity alliances include any exchange agreement in which the partners share or exchange equity. These include agreements in which partners create a new entity in which they share equity as well as those in which one partner takes an equity interest in the other. Equity has been considered an indicator of hierarchy because it is considered...

...of its equity in the alliance. In minority equity investments, the investing partner has an interest in the value of its equity holdings, while the recipient of investments can be legally...

...threshold, the shared ownership structure is expected to provide an effective hierarchical control over the exchange .

While such a scheme is parsimonious, it masks differences in hierarchical ...thus relatively limited in their capacity to coordinate activities across partners. In addition to the exchanged equity, joint ventures entail separate administrative entities with their own management structures. Thus, in combining...

...operating procedures with such alliances, board representation does create a forum in which both partners exchange information and can initiate and ratify decisions on a regular basis. Beyond board-level interactions...
...ongoing basis.

Alliances in the third category, contractual alliances, do not involve the sharing or exchange of equity, nor do they entail the creation of new organizational entities. Lacking any shared ownership or administrative structure, contractual alliances are considered more akin to arm's-length market exchanges . Members of the partner firms work together directly from their own organizational confines. Few if...

...licensing, second-sourcing, and distribution agreements and bidirectional agreements such as joint contracts and technology exchange agreements. While some of the hierarchical elements discussed may occur in some contractual alliances, they...for the overall strategy to be successful.

Reciprocal interdependence occurs when units come together to exchange outputs with each other simultaneously. Such exchange entails a pooling of resources by different units, but in addition, each unit is simultaneously...D alliances included those that encompassed a technology component in the agreement. They could involve exchange , unilateral transfer, sharing, or co-development of technology or elements of all the above. Such...right. This study focuses exclusively on alliances and does not examine the entire spectrum of exchanges from market to hierarchy. While it utilizes hierarchical controls as a key dimension to distinguish ...

...coordination costs. Overall, the results have several ramifications. First, they suggest that the formation of exchange relations between firms is not entirely dominated by appropriation concerns. Coordination costs, arising from decomposing...organizing resources within firm boundaries (Alston and Gillespie, 1989) and are not easily applicable to exchange relationships such as alliances. Our concept is akin to Williamson's (1991) in his discussions...Brookings Papers on Economic Activity, 3: 783-820.

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Extricating A Division From Its Parent

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TEXT:
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]Kimbol: Transfer also...

...a done deal, during an interim time there may be the possibility of reaching an agreement under which the buyer operates the plant on behalf of the seller as sort of...transfer.
]Goldy: From a pure business perspective, the buyer who receives a long-term supply agreement is going to be relying on the seller. This issue falls on several levels. The...
...a month, or a year later and start competing with Wheels. So, a non-compete agreement is essential. Non-competes are enforceable if they are reasonable in terms of the length...

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DIALOG(R)File 225:DIALOG(R):Domain Names 1997 - Nov. 2003
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5162252 Record Date: 19990109

TYPE : WhoWas
Domain Information
pl-x.com
STATUS : Registered
REGISTRAR: Unknown Registrar
Name Servers
ns1.domainhost.com
ns2.domainhost.com
?